

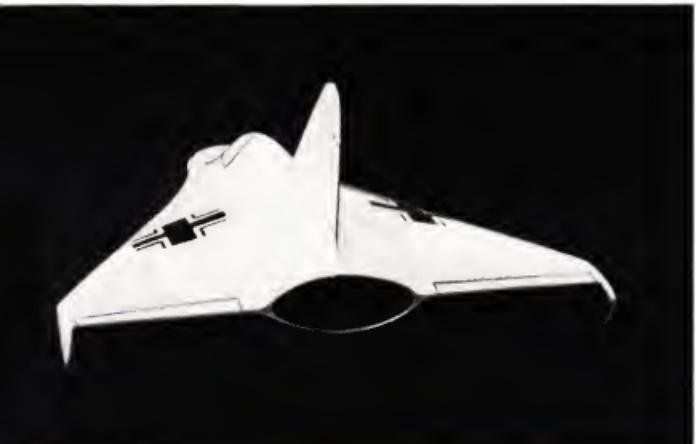
Aviation News

McGRAW-HILL PUBLISHING COMPANY, INC.

AUG. 27, 1945



German Supersonic Plane Model—Aircraft exceeding speed of sound may be similar in appearance to this wind-tunnel model of the Jaeger P-13, a revolutionary ram jet, all-wing design found in Germany by U. S. experts. Designed by Alexander Lippisch, who also designed the Messerschmitt 163 rocket plane, this model had been tested and a prototype was under construction when the war ended. It was to be powered by a Lorin jet unit. The pilot would occupy a cockpit near the front air ducts. Some hope was held for a maximum speed of 1,500-mph. Several other experiments with this general configuration are under way, but no craft of this general design has yet flown. (See story Page 14.)



AAF Asks 3,800 Planes In 1945

Plant by plant schedule summary shows most builders with work set for present; experiments kept.....Page 7

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See 5,000 Lightplanes This Year

News poll of leading manufacturers reveals production lines undergoing immediate shift.....Page 32

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Further Changes in CAA Expected

Two more regional administrations believed subject to committee investigation; other resignations seen.....Page 10

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Point to New Airline Techniques

CAA Radar, VHF, landing tests indicate trend; instrument approaches at increased frequency seen.....Page 56

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Peacetime Air Cargo Potentials

Air Cargo, Inc., survey reveals very definite pattern for first five post-war years trend to air seen.....Page 51

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Aeronautical Board Replaces APB

Powerful body assumes top role in design and production as head of co-operative Army-Navy planning.....Page 27

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Reveal Novel German Jet Wing

Progress indicates adaptability of new propulsion configuration to long-range peacetime carriers.....Page 14

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Outline House Transport Probe

Pamphlet prepared by Rep. Lea asks comment on study points ranging from integration to taxation.....Page 60



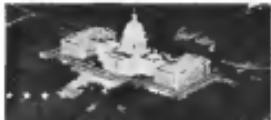
THERE'S A NEW STANDARD IN AIR TRANSPORTATION!

Lockheed Constellation

Lockheed Aircraft Corporation, Burbank, California  *Turn ahead in the interest of flight*



Washington Observer



END OF LEND-LEASE—Termination of lend-lease shipments has raised a question of private importance to the aviation industry—how many surplus planes will be left in the lend-lease "pipeline" and when will be done with them? Surplus aircraft stocks are piling up by the day and with the surplus airplanes are surplus engines, both in the crated and in the spare-engine pipeline. The already pressing surplus problem will be even more so if lend-lease planes still in the pipelines are added to the pile. Disposition will have an effect on the entire industry.

* * *

ALTERED CIRCUMSTANCES—Even after the Japanese surrender, the AAF and Navy continue to receive a considerable number of requests from aircraft manufacturers for assistance in filling critical shortages of materials. While many of these requests probably were initiated prior to the end of hostilities, some officials in Washington regard them, in some instances, as attempts to aid in conversion. Consequently, the services are referring more of these requests with the suggestion that the matter be reviewed in the light of somewhat altered circumstances.

* * *

TIGHTENING-UP—Our factor in the current CAA situation is the desire of the Commerce Department officials to take more careful supervision over that agency. This is not due to any misgivings about Administrator T. P. Wright. On the contrary, Wright has full support of Commerce executives and their blessing in extending from administrative rule. However, Secretary Wallace and his chief advisers feel CAA has too long operated in effect, as an independent agency.

*

EIGHT INTO ONE—The same attitude prevails toward all of Commerce's bureaus. One official comment is that in the past the department has consisted of eight autonomous bureaus. In reality, all, like the CAA are supposed to function within the framework

of the department and there is a definite need now toward integrating all to an overall policy.

* * *

FOREIGN AIR BASES—While Navy spokesmen on Capitol Hill are driving for U. S. commercial and military rights to bases in the Pacific, members of the Senate's Merchant Marine and Fisheries Committee are pushing for U. S. rights to air bases in Europe. The Air Forces furnished the committee a list of 370 air bases concentrated in the European theater, but was able to approximate expenditure on only 35 percent of the total. An amount of \$413,860,690 was reported for the 35 bases. There will be considerable discussion of this subject in Congress in coming weeks.

* * *

SURPLUS HEARINGS—Hearings will open this week on Capitol Hill on President Truman's recommendation for a one-man administrator for the Surplus Property Board and other proposed changes in the 1944 surplus property act. Rep. Carter Matteson (D-Ala.), chairman of a House Banking and Currency subcommittee handling the proposed legislation, favors the single administrator, abolition of most of the restrictions on a swift disposal of war planes, and removal of existing "priority" rights on purchase of surplus property. Thus in opposition to the single administrator proposal and whether SPB revision legislation will be expeditiously enacted by Congress still appears questionable.

* * *

MANPOWER CERTIFICATIONS—There will be no further certification of essential workers in aircraft plants and existing certifications will expire by January 15. The Interagency Committee on Manpower has decided that the aircraft industry will have no special certification, should Science Service continue at its present rate, and that technical personnel will be subject to selective service as well as other manpower mobilization programs.



The German Ju-287, first jet heavy bomber to be built



American Business is Growing Wings

MAKING America strong in the air, and thereby saving National Security, is a program which will have the wholehearted cooperation of American Business as well as the support of John Q. Cannon, Governor, and the Aircraft Industry. And American Business, giving its support, will of course gain many benefits from the conversion of our increasing aviation skills and capacities to the ways of peace.

Just as aviation has helped to solve the problems of logistics in war,

so will aviation provide industry and business with new tools for shrinking the distance between markets, for opening new channels of distribution, and for achieving quick and ready access to any part of the world in a matter of hours.

As industry takes advantage of the facilities offered by aviation in the days ahead, it will thereby contribute to the further development of aeronautical science in America—for example, in using such new aircraft as the helicopter on new assignments for which

this craft is especially adaptable and useful.

For these and many other reasons, American Business will do its part to make this Nation a great peacetime power, working for Security and Permanent Peace.

At Bell Aircraft, we shall continue to fine the ingenuity and research that helped to develop most of our aeronautical weapons (manned) aircraft and air power as a partner in progress to Business and to all mankind.

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NUMBER AIRCRAFT WAR PRODUCTION COUNCIL, EAST COAST, INC.

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PACEMAKER OF AVIATION PROGRESS

NIAGARA FRONTIER DIVISION

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Invader (P-51) and Kingcobra (P-63)—Fighter Aircraft—American's First Jet Propelled Plane
The Bell Destroyer

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Akron, Ohio
Flexible Gun Mounts and other military materials
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Newark, Ga.
Bell P-51B Interceptors

VOLUME 4 • NUMBER 5

Aviation News
McGraw-Hill Publishing Co., Inc.

Aug. 27, 1945

AAF Alone Asks 3,800 Planes By Year End; Experiments Kept

Plant by plant schedule summary shows most builders with work set; experimental and development contract retention highlights immediate future; 6,000 Army craft soon needed during next 16 months.

By SCOTT HERSEY

Current aircraft production schedules, according to best available information taken on a count of military aircraft for the AAF alone of about 3,800 planes plus the rest of the year, with Navy figures still to be added, and with scheduling estimates through 1946 indicating production for the Army of approximately 6,000 planes for the next 16 months.

facturing industry as far as service contracts are concerned.

Definite trends are now beginning to establish which show that while embassies are down and cancellations sharp, most of the basic aircraft manufacturers still have naval and military schedules to complete which will not eat production sheet in their home plants.

The Navy's cutback and cancellation schedule has been delayed in official channels, and estimates on its program are lacking. But estimates on Army output show around 600 for next month, 380 for October and 350 each for November and December. The same estimates by industry sources set Army production for next year at slightly over 300 a month for the first five months and somewhat under 300 for the remainder of the year.

Contracts. Total Army and Navy contracts awaiting settlement at the end of July amounted to \$10,615,939,000 with the Army's total \$13,188,000,000 and the Navy's \$14,113,000,000.

The AAF contracts awaiting settlement include \$2,900,000,000 in fixed price contracts and \$4,000,000,000 in cost plus fixed fee Army cancellations in August amounted to \$8,300,000,000.

Navy's Bureau of Aeronautics contracts awaiting settlement include \$220,000,000 fixed price and \$225,000,000 in cost plus fixed fee contracts with estimated August cancellations set at \$3,500,000.

High Point—Retention of experimental and development contracts appears to be the high point in the mystifying picture of the immediate future of the aircraft manu-

facturing industry as far as service contracts are concerned.

Definite trends are now beginning to establish which show that while embassies are down and cancellations sharp, most of the basic aircraft manufacturers still have naval and military schedules to complete which will not eat production sheet in their home plants.

Martin, Omaha. B-25 schedules were 50 for August, dropped to 30 in September and then taper off to 20 a month.

Boeing, Renton. B-29s drop from 100 scheduled in August to 60 in September when cancellation will involve about 1,325 planes.

Martin, Omaha. B-25 schedules were 50 for August, dropped to 30 in September and then taper off to 20 a month.

Consolidated, Fort Worth. B-24 schedule for August was 18, not yet canceled—Involving about 72 airplanes.

Consolidated, San Diego. B-25 schedule called for one in August, contract completed.

North American, Kansas City. B-25 August schedule was 115. About 300 planes canceled.

Consolidated, Fort Worth. B-24 schedule for August was 18, not yet canceled—Involving about 72 airplanes.

Consolidated, San Diego. B-25 schedule called for one in August, contract completed.

North American, Kansas City. B-25 August schedule was 115. About 300 planes canceled.

Douglas, Tulsa. A-36, with a schedule for 3 in August, is out in September—Involving about 497 planes.

Douglas, Long Beach. A-36, out in September, as against a schedule of 108 for August.

Lockheed, Burbank. P-38 out in



No Place to Go: B-25 Mitchell bombers on the final assembly line of North American Aviation, Inc., Kansas, which will be turned over to AFAC for disposition.

September 30 against a schedule of 460 for August.

► **Northrop**, Hawthorne: P-43 schedule for August was 34; 30 September, 13, tapering off to about 10 a month through early 1946.

► **Lockheed**, Burbank: P-38 schedule for August was about 50 and new schedule calls for increase to around 110 a month, through the middle of next year.

► **North American**, Dallas: P-51D, cut after August schedule of 316.

► **North American**, Inglewood: P-51D had August schedule of 266, September, 138, then off to about 30 airplanes a month.

► **Republic**, St. Louis: B-47 had August schedule of 125; out in September, cancellation involves about 2,000 planes.

► **Republic**, Farmington: P-47 had August schedule of 180, September, 90; October, 28, and then tapers off to around 6 a month. Cancellation involves about 2,200 planes.

► **Douglas**, Chicago: C-45 had August schedule of 68; others cancelled, involving about 550 planes.

► **Douglas**, Santa Monica: C-45 August schedule was 56, down to 30 in September, 12 in October and out; involving about 470 planes.

► **Curtiss**, Buffalo: C-45 August schedule was 166, cancellation of

the rest involves about 1,300 planes.

► **Curtiss**, St. Louis: C-45, cancellation complete with four in August.

► **Fairchild**, Hagerstown: C-45 August schedule is one, September four, up to 12 a month by December and continuing at that rate.

► **North American**, Dallas: C-45, cancelled.

► **Douglas**, Oklahoma City: C-47 August schedule, 180; September 36, and cut with 935 planes involved in cancellation.

► **Beech**, Wichita: C-45, August schedule 81 and rest cancelled, involving about 800 planes.

► **Piper**, Lock Haven: L-4 schedule for August was 136, cancellation involves about 200 planes; L-14, with 28 scheduled for August, has rest cancelled—about 325 planes.

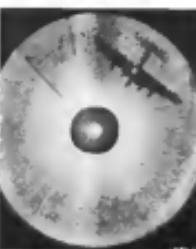
► **Consolidated**, Wayne: L-6 schedule for August was 120. Cancelled about 125 planes.

► **Skinner**: R-5 helicopter has August schedule of 10 craft. Cancellation of others involves about 415 planes.

► **Stearman**: R-6 Sikorsky schedule for August was 40. Cancelled after that involves about 325 planes.

► **Navy**: Best available figures at this time show this picture of Navy contractors:

► **Consolidated**: PB4Y2 production



RADAR PORTRAIT:

Although made from a shorter distance than combat readiness usually permit, this unusual photo of an American bomber as it comes into the range of the radar beam of another plane, shows the accuracy with which airborne radar scopes can pierce haze or darkness to present their electronic "portraits."

reduced to about 16 a month with 450 planes cancelled.

► **Lockheed**: PTV cancelled.

► **Lockheed**: PTV production reduced to eight a month, with 45 planes cancelled.

► **Martin**: P5M production rate reduced to 15 per month, with 229 cancelled.

► **Consolidated**: PB7 cancelled.

► **Curtiss**: SB2C cancelled.

► **Consolidated**: THV cancelled.

► **Eastern Aircraft**: THM cancelled. ► **Grumman**: F4F production rate reduced to about 30 a month.

► **Chance Vought**: F4U production reduced to 40 a month.

► **Grumman**: FG cancelled.

► **Goodrich**: FG4 cancelled.

► **Grumman**: F4F cancelled.

► **Grumman**: F4F, rate of production reduced to 45 a month.

► **Ryan**: FR1 reduced to about 15 a month.

► **Martin**: PRM production rate reduced to one a month.

► **Grumman**: JRF cancelled.

SEC Lists Aircraft Terminations

War contract terminations of aircraft producers, totaling \$4,456,207,000 are disclosed in a report released by the Securities and Exchange Commission. They were filed in accordance with a recently adopted rule of the commission that companies report immediately cancellations of war contracts where the terminated portions of the contracts are 25 percent or more of the total sales of the previous fiscal year. The list, still incomplete, follows:

***Boeing** Aircraft \$360,000,000
"Kirkland" Cessna subfactory
***United Aircraft** Corp. \$35,800,000
"Approximately."
Curtiss-Wright Corp.
***Superior** Corp. \$12,000,000
Wright Aeronautical Corp.
"Baltimore" \$10,000,000
Bell Aircraft Corp. \$23,800,000
Douglas Aircraft Co.
Inc. \$25,000,000

The following companies gave, in addition to the amount of the terminated contracts, also the amount of war business which remained on their books at the time the report was filed:

Beech Aircraft Co. \$332,500,000
Lockheed Aircraft Corp. \$10,000,000
Douglas Aircraft Co. Inc. \$75,000,000
Grumman Aircraft \$41,000,000
Northrop Aircraft
Inc. \$5,500,000

Five aviation schools which have been declared surplus by the Reconstruction Finance Corporation have been turned over to the Surplus War Property Board which will designate the disposal agency for the facilities.

The schools, owned by the RFP, are: **Koleman Flying School** at

Koleman, Tex.; **Dart-Aero Tech** at Albany, Ga.; **Embry Riddle** at Arcadia, Fla.; **Ledwick Aviation Military Academy** at Avon Park, Fla., and **Anderson Air Activities** at Melrose, Mass.

WPB Air Branch Ends, Controls Stop

The War Production Board's aircraft division, whose life span was the shortest of any WPB operating organization, has been dissolved.

It was established Nov. 18, 1944, to assist all civilian aircraft contractors with special emphasis upon the civilian. In order that these essential contractors might be maintained in efficient operation, conditions:

► **Main Task** — The division's responsibility consisted chiefly of extending payment assistance for the procurement of maintenance equipment and materials. In addition, it expedited the orderly conversion of the aircraft manufacturing industry and assisted the aircraft carriers in expanding their facilities to accommodate the greatly increased wartime loads.

Henry P. Nelson, director of the division, has resigned. He has been on loan from the International Harvester Co., and has served WPB, the Office of Production Management, and the Aircraft War Production Council since 1941. His future place has not been disclosed.

All regulations restricting the manufacture of civilian aircraft were revoked May 17, 1945. All other regulations affecting aircraft production are now in the process of being revoked, leaving the industry completely free from WPB control.

WPB has announced the immediate cancellation of virtually all allotments of controlled materials and all preference ratings assigned by the Army, Navy, Maritime Commission except the new NM "Military" rating and AAA ratings. The cancellation of all allotments and ratings is employed in order to get orders unfilled as fast as possible. Experience gained from V-E Day showed that the individual paper work involved in terminating controls on a piece-meal basis might require 10 to 30 weeks to cancel obsolete preference ratings and allotments.

To speed the flow of scarce materials into expanding civilian production, WPB Chairman J. A. Krug is urging manufacturers whose military contracts were stopped to cancel promptly their own orders for bottleneck items. Krug, in a letter to major war contractors, said that "in order to achieve maximum the time required to achieve full civilian production, it is vital that orders for these materials which were placed to fill military contracts and which are no longer needed be canceled with the utmost speed."

He stressed the importance of devoting promptly to civilian industry such items as steel sheet and strip, structural steel, gray and malleable iron castings, lumber, shipping containers, and electric motors.

► **Federal Controls**—Although there was still recognition of the need of maintaining increased number of leading firms, several aviation leaders have expressed frankly expressed desire that a large-scale federal program was the only way to attain the goal.

W. T. Piper, president of Piper Aircraft, recommended his belief that more leading firms in quantity would serve for the time being. Arthur J. Borenas, chairman of the Non-Scheduled Flying Advisory Committee, declared that his own state, Iowa, was not anxious for federal aid because it would mean substantial federal control over the airports.

Dr. R. H. Goddard Dead

Dr. Robert H. Goddard, 82, noted American physicist and inventor, a pioneer in the development of jet-propelled planes, bombs, and other rocket-principle weapons, died recently in Baltimore.

Scraping Seen Top SPB Problem

Biggest problem of the Surplus Property Board, in the opinion of many Washington observers, is the task of getting rid of surplus property as quickly as possible. It is expected at first glance that either development of a wholesale and efficient scrapping program.

Experts at SPB are well advanced on this problem, having been in the process of solution since the Japanese surrender. This does not mean that the rearranging phase of the program is being neglected, since this problem too, expands with each day.

► **Vacancy Preparation**—State statute used by the board requires that successor day was the day for which the Surplus Property Board and the disposal agency have been prepared.

"The job is not an easy one. We have to know all the answers to all the problems that confront us," the statement, signed by Chairman W. S. Symington and Members Edward H. Halle and Robert A. Sharley, declared.

Prevention has been made to

speed plant clearance and put government-owned machinery to work in reconstruction without delay. The use of surplus aircraft, aircraft engines, and other facilities for government-owned plants has been adopted. Machinery for setting surplus property abroad has been developed.

► **Changes**—Last week several appointments in Washington that have been made since the return of the Surplus Property Act to facilitate surplus disposal. The question of the composition of the board of a three-man board should be cleared up as soon as possible. It is expected that a one-man or a one-man administrator empowered in certain to be a temporary one. President Truman has asked for changes in the act and legislation to carry out his ideas will be presented as soon as possible.

It also seems apparent in Washington that there will be numerous personnel changes in the surplus property disposal organization to meet one of the biggest and toughest of all post-war problems.

Further CAA Changes Seen As Special Probe Continues

More resignations and resignments expected; two more regional administrations believed subject to Department of Commerce committee investigation on basis of reported "irregularities."

By WILLIAM KROGER

Resignations and resignments within CAA will increase, it was felt last week as a three-man investigating committee delved deeper into the administrations of CAA regional inspectors.

The committee, appointed by the Department of Commerce, already has directed formal charges and censures at seven officials of Region I (Aviation News, August 28). Industry circles estimate that committee action will not long be delayed as respect to Regions II and V.

Resignations Asked—In Region I, which includes the entire East Coast from Maine to Virginia, two officials have been asked for their resignations. One is Oran P. Hinsdale, regional administrator with offices in New York. The other two have been charged with malfeasance, and three more have been transferred to other posts. According to CAA, the transfers were made because of "personality clashes" than because of any misconduct.

As listed by CAA, the changes include:

• **I.** Improper issuance of airmen's certificates. There were instances in which it was alleged that commercial certificates and horsepower ratings were issued with flight tests of the applicants.

• **II.** Discrepancy in enforcement of CAA regulations.

• **III.** Irregularities in conducting Wright-Patterson flight evaluations. No violations were not filed against applicants found cheating. Answers are alleged to have been changed (1a) before passing grades.

• **IV.** Lack of uniformity in enforcing CAA regulations, accepting other than CAA tests as 300 to 360 feet.

Meanwhile, an Army board investigating the mishap in which the B-52 flew into the side of the world's tallest building has had the case referred to the Office of the Inspector General for review. The board's report, which the pilot is electing to fly over Manhattan under the conditions prevailing, and to the La Guardia Field control tower's action in permitting contact flight.

Following a personnel swing

around several regions, the administrator has his findings before Assistant Secretary for Air, William A. M. Baudler, and Secretary Wallace and asked that an investigation be conducted by the Commerce Department to insure impartiality.

Names Held—Having bound himself to accept the report of the investigators, Wright acted upon receiving their recommendations. As these actions are being given 30 days in which to reply to the charges, CAA has not yet revealed their names.

It is indicated in some quarters that, spurred on by the CAA "Old Guard," the two men who have been asked to resign will carry their rebellion up to the Civil Service Commission. It is explained that should the Commission up-

set them, it would practically force Wright to resign. Official quarters discount this possibility and insist he is in the correctness of Wright's action.

On the other hand, some persons highly critical of CAA are not convinced that the two men are fully in the wrong. They prefer a feeling that perhaps the real root of the trouble are in Washington and that actions in the field merely reflect that fact.

Absecon—Last week, as the lid was testering on top of the ballooning CAA kettle, H. B. Malay was acting head of the safety regulation division in the absence from the country of Fred M. Laster, assistant administrator, while whose purpose fails the general inspection service. Administrator Wright was on vacation. Assistant Secretary Baudler was in South America, and his assistant, George Burgess, was on vacation.

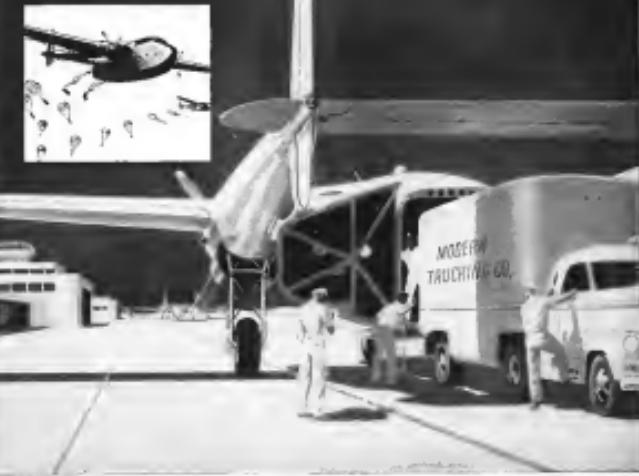
Highlighting the general apprehension held by many CAA people that changes are on the way, was an off-hand remark last week of a CAA executive to the effect that "I went through one investigation and don't intend to spend two years on another. And I think other key men feel the same way."

Although the investigation of Region I brought into the open a situation known for some time in the industry, it has not as yet been followed by formal complaints from other regions. General inspection division reports it gets minor complaints from time to time, but that the Pittsburgh case is the only one that has involved serious charges.

Other Regions—Contrarywise, what were termed regional abuses of authority were being disclosed without reservation. Region IV, which embraces Wyoming, South Dakota, Nebraska, Iowa, Colorado, Kansas and Missouri. For a period, regional inspectors were refusing to approve any certificate in an entire state. In the end a conference attended by representatives from Washington brought relief. But informed persons do not believe the incident is closed from the standpoint of the man-administrative than indicated.

Surveillance as being attached to several of the seven posts announced by Wright as constituting a program to insure strict and impartial enforcement of CAA regulations. Particularly, observers are pointing to the provisions that employees are prohibited from having any proprietary interest in

THE TOUCH OF TOMORROW IN THE PLANES OF TODAY



A Ship of War—With a Peacetime Destiny

You won't have to load this weapon of war into a peacetime placeholder. V-J Day will see the Fairchild-designed "Packet" ready to glow the arteries of commerce.

Built specifically for military cargo—tons of guns, men and equipment for battle—the "Packet's" large hold will receive the bulky goods of peacetime commerce with ease, speed them hundreds or thousands of miles to their destinations.

Designated by the Army as the C-42, the "Packet" has been nicknamed the "Byng boxer." Its cargo compartment (2,250 cubic feet of unobstructed and compassed space) carries 93% of the capacity of a railroad boxcar.

Facility in loading is a triumph of Fairchild design. Split doors at the rear of the fuselage open to the full width of the cargo space. Cargoes roll smoothly into the "Packet" from a truck, for the "Packet's" horizontal floor is standard truck floor height. Smaller pieces can be loaded through a forward loading door.

The value of the "Packet," to shippers of all types of "bulky" cargo, will be as broad as the future of air cargo itself. Time and experience will attest to its economy and adaptability of uses. Thus, the "Packet," now at war, emphasizes the Fairchild tradition of advanced aviation, "the touch of tomorrow in the planes of today."

80 U. S. WAR BONDS AND STAMPS

Fairchild Aircraft

Divisions of Fairchild Engine & Airplane Corporation, Buffalo, New York

civil aviation, and that employees cannot accept gifts.

The practice of CAA personnel having private aviation interests has reached such an extent that there are records of inspectors buying surplus planes, having them repaired, certifying them, and then selling them.

► **Gifts**—Hawkins is continuing to demand that the necessity of reducing the ban against gifts is real, that CAA employees in the past have been complicit of gratuities.

In this connection, it is also being recalled that at the last meeting of the CAA Non-Scheduled Flying Advisory Committee, bitter complaints were voiced by aircraft service operators at the necessity of costly amortization of CAA field men.

Al Lewis Joins ANLC

Al Lewis, formerly chief of the maintenance branch of War Production Board's aircraft division, has joined the Office of the Army-Navy Liquidation Commander as chief of the components and equipment section. ANLC has charge of disposal of all surplus aircraft and other surplus overages. Lewis will be assisted by John Evans who was an industrial analyst at the aircraft division of WPA before joining the Commissioner. Lewis is the son of Dr. George Lewis of the National Advisory Committee for Aeronautics.



Tandem 'Copter' 'Bus' Proposal—Excessive preliminary research has led to the design by Gilbert Magill, Los Angeles, president of Rotor-Craft Corporation. He calls it the Rotorbus. It is designed to carry 28 passengers and a crew of two for distances of from 10 to 100 miles.

Helicopter "Bus" Design Proposed

Rotor-Craft Corp. expects tandem-blade craft to lift more than 40 percent of gross weight as useful load.

Ability to lift, as useful load, more than 40 percent of its 25,000 pounds gross weight is predicted for a 24-passenger Rotorbus proposed by Rotor-Craft Corp. of Los Angeles.

Gilbert Magill, West Coast pioneer in helicopter design, president and general manager of Rotor-Craft, believes that results of test flights of a small experimental tandem helicopter, his company now is building, under an Army contract, will establish the efficiency his design is inherent in the Rotorbus design.

Limited performance and structural information released by the Magill on its experimental P-3 Engineering Forum, Inc. 16-passenger tandem helicopter (AVIATION NEWS, July 27) indicated an approach to a useful load of 40 percent of the machine's gross weight.)

► **Design Merit**—While still in the design stage, the Rotorbus has features which appear to warrant exploration with a full-size prototype.

Magill proposes a large airplane-type metal fuselage with a spa-

cious cabin for passengers. Two liquid-cooled engines centrally located beneath the cabin floor would supply power to a banded drive shaft linking and synchronizing rotors which will have 60-ft. diameter discs and an overlap of approximately one-half a blade length. He estimates that the lift loss of overlapping discs will be small and more than offset the weight saved in having a relatively short (85-ft.) fuselage.

The design shows an original approach in air flowing to the engines and the cabin, with virtually no sacrifice of the helicopter's overall streamlined exterior. Air is drawn in through a slot in the leading edge of the rear starboard support fin, and that delivered to the engines finally is exhausted through a turbine driven axial-type blower with a slight jet effect.

► **Baggage**—From the standpoint of the airline operator, the logical buyer of a Rotorbus, the design is interesting in its offering of eight under-floor baggage compartments loaded through low-level doors. The landing gear is retractable. Doors opening from the passenger and crew compartments are built-up, down-hinged doors. The design sketch shows the use of a crew of two, pilot and co-pilot.

Magill estimates that a helicopter such as his proposed Rotorbus will have greatest utility for short-haul service over distances from 10 to 200 miles.—S. B.

Col. Murphy Assigned Surplus Planes in U. S.

Disposition of surplus aircraft within the country will be under the direction of Col. Frank J. Murphy as associate director, Office of Surplus Property, Reconstruction Finance Corp. Colonel Murphy, for the past three and a half years, has been chief of the production division of the midwest district, Army Technical Service Command, at Wichita.

He once served as aide to the late Brig. Gen. Billy Mitchell and was in the air service during World War I. Before going on active duty in this war, Colonel Murphy directed sales for the Chrysler Corp. ► **CB-1 Head**—In the enormous disposal of surplus, Army-Navy Liquidation Commission has announced that Walter B. Schlesinger has become field commissioner for India, Burma, and China. Schlesinger is on leave as vice-president and director of Muller and Phipps



For transport, for combat, Malabar aviation jacks speed service jobs. Hydraulic power + lock nut holding = a Malabar Hydro-Mechanical Jack. Malabar invites correspondence or discussion of your maintenance equipment.

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German Jet Bomber Plans Reveal Novel Wing, Engines

Power progress indicates adaptability of new propulsion configurations to long-range peacetime carriers; major airfoil placed in swept-forward position on heavy JU-287 powered by combination of jet units.

Although distinctly related by designation series in the Ju-87 "Stuka" of the war's early years, the Ju-287 heavy jet-propelled bomber bears little resemblance to its indomitable predecessor.

The 287 is of unusual interest because of its peculiar swept-forward wing and because it was the world's first heavy jet-propelled bomber to jet.

Wing Advantages — The advantages claimed for this 28-degree swept-forward wing are both constructional and aerodynamic. Constructionally, a large contoured bomb bay could be provided forward of the wing and relatively about the center of gravity. This also allowed for the retraction of the novel landing-gear into the fuselage just aft of the bomb bay.

The Ju-287 was ultimately to have been propelled by two large turbojet units, either the **Junkers 012** or the **BMW 014**. The 012 has an 11-stage axial-flow compressor section and a 2-stage turbine, with a designed thrust of 4,000-lbs. at sea level.

Cruising speeds in all three cases were approximately 80 percent less, with 80 percent thrust, a very

favorable ratio. (Speeds are for a mean weight of 35,400-lbs.; normal all-up weight of 47,300-lbs. would be somewhat slower, but still very much faster than the B-17 or B-24, and about the same 30,000-lbs. load, but slightly shorter range.) Speed and performance generally was expected to be better than the B-17, and evenness with the new big turboprops, the **Penta 018** or **BMW 018**.

As his famous interview with Alfred air experts, Nam Air Chief Goering declared that failure to proceed with the very promising Messerschmitt 264 four-engine bomber was due to the antipathy of some people for Willy Messerschmitt.

This long-range bomber, capable of an operational flight with loads from Germany to New York, was first flown in December, 1942, powered by four Jumo 211 liquid-cooled engines.

Speed Reserve — The more powerful Junkers 219's or the robust **BMW 018**'s would ultimately be needed for 2000-lbs. of supplementary BMW turbo-jet units, one under each wing, for bursts of high speed.

Goering added that a very powerful new bomber was expected to be ready by the summer of 1946 with a combination of jet and engine propulsion. These types were under consideration, a new **Junkers** and a **Horten**, the two latter being flying wing projects, a type in which Goering expressed great confidence for future developments.

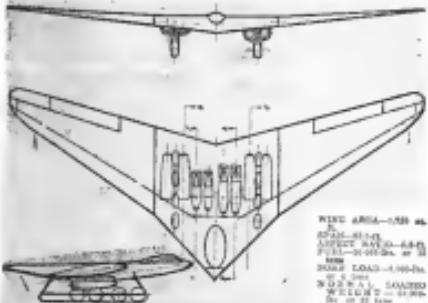
Not much data is available on the projected flying wings. The **Junkers** model was said to be in the design stage, but the **Horten** are impressive.

Span 74.8-ft.; aspect ratio 4.8; wing area, 1,380 sq. ft.; gross weight 77,000-lbs./94,000-lbs.

Designed speed 420-mpm; designed range 1,700 miles. Stabilizing fins and radiators mounted on the trailing edge; wing of wood, fuselage of metal.

Power plant consists of four **Henschel-Hirth 018** turbo jet units giving 11,400-lbs. static thrust at sea level mounted in a row on top of the wing and extending over the trailing edge. It is believed that the quoted speed and range are on the theoretical scale.

An even larger flying wing design is the **Horten 18**, with a wingspan of 36-ft. Weight is similar to the **Junkers** model, but the power plant, consisting of four jet units of either the **Jumo 004** or **BMW 018** type. Static thrust available by the engines would have been about 8,000-lbs. at sea level.



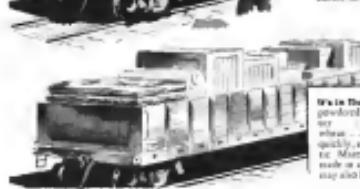
Nazi Jet "Wing" Bomber: One of the largest flying wing long-range bomber designs projected by German aeronautical engineers before VE Day, the **Horten 18**, sketched above, was to have been propelled by four jet units of either **Jumo 004** or **BMW 018** type. Static thrust available by the engines would have been about 8,000-lbs. at sea level.



1936 Penta 018 was accidentally damaged, but could be pulled down again, a new cell invented like the **BMW 018** had been used to repair wings, as with a metal fastener, thus simplifying maintenance.



1947 Martin Mars flying boat can carry 100 passengers and land on water. It has a unique hull design which allows it to land on water and take off again in 10 minutes.



1947 Martin Mars Any liquid, including water, can be poured into the hull, which is made quickly, easily. Strength, durability and safety are to be made at any cost, any slope, may also be used for storage.

How New Elastic Container May Cut Shipping Costs of liquids, powders, grains..anything that pours!



1940 Army Air Forces planned to use Martin Mars aircraft to transport 100,000-lbs. of bombs. Mars engine had been working problems in carrying 100 passengers. Above, Mars multi-cell hull, inflated with helium.



1942 "Jumbo" Double-decker was 50 feet long. It has been given the record range for speed flying with 100 passengers. Above, Martin Mars cell in 8-25 of type used by Double-decker in his historic flight.



1945 A record of international speed was set by the **Double-decker** Martin Mars cell. It has a range of 800 miles. Other types of cargo, consisting of much as 10,000-pounds, are quickly set up on captured jet aircraft to load six boosters when cells are filled. This cuts overall shipping costs, eliminates baggage of empty tank cars or tank trucks.

Many Advantages

How are some of the advantages affected by the Martin Mars cell?

1. In just a few minutes cells may be fitted onto military railway cars, trucks or barges, thus enabling these vehicles to carry liquid or free-flowing dry materials.

2. On reaching destination and emptied of their contents, cells are folded up and shipped to sender. One booster will hold enough empty cells to load six boosters when cells

are filled. This cuts overall shipping costs, eliminates baggage of empty tank cars or tank trucks.

3. Cells cannot be bent or damaged, will not rust or corrode, yield under impact instead of breaking, are lighter and easier to handle.

4. If punctured, Mars cells may be quickly patched, thus avoiding soldering or other time-consuming repairs required to patch metal containers.

Write Us Your Suggestions

Bay with wartime production of Martin Mars, Matador and other aircraft, the Glenn L. Martin Company has been unable to explore fully the possibilities of the Mars cell. If you see possibilities for these elastic containers in your business or in other fields, we welcome your suggestions.

Address: THE GLENN L. MARTIN CO., BALTIMORE 3, MARYLAND.

The Glenn L. Martin Company, Inc., 8000 Annapolis Road, Baltimore 3, Maryland.

Martin
AIRCRAFT

Builder of Dependable Aircraft Since 1910



German 'B-29'. The massive Luftwaffe's largest plane, a Junkers 290, as it arrived at Air Technical Service Command's headquarters at Decatur to be studied by AAF experts. It was flown from Paris by a U. S. crew. While comparable in size to the B-29, the 290's range and average speed are less than those of the Superfortress. Designed as a transport, it was modified and equipped with radar for use as a long-range search and "eyes" of U-boats.



German Jet-Messerschmitt 262A-1. Twin-jet German fighter, front view of which is shown, has been brought to Wright Field to be studied by the Air Technical Service Command. Armament is four 30 mm cannon in the nose. Wing span is 61 feet and length 38 1/4 feet. Level flight speed of the Me 262A-1 is estimated at between 515 and 530 mph.

600, totaling 6,000 or 7,040 hrs. of flight time. The 600, which fall as the four 911's, hence it may be assumed the Horten model would not have given as good performance as the Junkers. However, all of these projects are awaited with great enthusiasm in connection with our own post-war developments.

Jet-Turbo Problems

A complete engineering review of American turbo-jet engine development may develop under instructions emanating from the Bureau of Aeronautics. The recent death of Maj. Robert I. Baum in a Lockheed P-80 Shooting Star Army groundwing of all P-80's, except for several which are being used for exploratory purposes, may be attributed to engine trouble, may be attributed to insufficient fire bands which apparently have not been solved.

One such meeting was attended by Air Commanders F. K. Banks, director of engine development, British Ministry of Aircraft Production.

While no formal discussion has been made of the extent of his discussions with American engineers and Army and Navy officials, the British expert is understood to have suggested a revision of American jet engine design plans and to have urged that many difficulties encountered in jet propulsion in this country may be traced to the use of steam turbine experts in the design and development of aircraft gas turbine engines.

Under close Army and Navy supervision, with strict secrecy agreements invoked upon these

106,000 L. A. Employees

The seven major aircraft producers in Southern California last week reported a total payroll of 106,000 persons, following layout of 25,000. The figure is expected to drop to considerably less than 100,000 within another fortnight.

At its production peak, the industry in the Los Angeles area received \$75,000,000, during June of 1943.

Current employment figures, by factory, are:

Consolidated, Valley, San Diego, 8,000; Consolidated Vultee, Valley Field, 2,250; Douglas, 4,000; Lockheed, 35,000; North American, 32,000; Northrop, 4,500; Ryan, 4,500.

Three Air Firms Name New Officials

Both becomes Aerocool Motors president; Hendrik elected Bredt vice-president; Shad heads C & S company.

Three major personnel changes in airline and aviation manufacturing companies, announced late last week, included:

• Carl F. B. Roth, named president of Aerocool Motors Corp. He will also assume the responsibility of general manager, and succeeds Lewis E. Pinson, Jr., who remained as president. Director C. F. Carr, who was chairman of the company, was elected a director to fill that vacancy.

• Frank E. Hendrik, who has been coordinator and assistant general manager of Beech Aircraft Corp. since 1942, was elected a vice-president by the board of directors.

• New southern region traffic manager of Chicago and Southern Air Lines, J. J. Shad who will have headquarters in Houston. All city traffic managers will be under his supervision. Early in 1944, Shad became a reservation agent and later became district traffic manager for Shreveport, Little Rock, and Memphis.

While no formal discussion has been made of the extent of his discussions with American engineers and Army and Navy officials, the British expert is understood to have suggested a revision of American jet engine design plans and to have urged that many difficulties encountered in jet propulsion in this country may be traced to the use of steam turbine experts in the design and development of aircraft gas turbine engines.

RTC Opens Bidding On 214 Plane Engines

Bids on 214 aircraft engines which have been declared surplus will be received by the Reconstruction Finance Corp., through Sept. 6.

ONE-MAN BOMBERS

Lockheed P-80 Lightnings—powered by Allison engines and originally designed as fighter planes—are now being used also as atomic bombers against the Japs.★

When the two bombs—one ton under each wing—are released, the Lightnings continue in combat as fighters—a dual assignment made possible by the engines' extremely light

weight, less than one pound per horsepower,* which gives the plane superlative flying power as well as speed.★ The extreme light weight—long the dream of

engineers the world over—is a product of Allison precision and

skill in handling metals—a precision and skill which will mark any product ever bearing the Allison name.

KEEP AMERICA STRONG
BUY MORE WAR BONDS



LIQUID-COOLED AIRCRAFT ENGINES

Allison
DIVISION OF
GENERAL MOTORS
Indiansapolis, Indiana



Text of CAB's Proposed Part 42— Non-Scheduled Carrier Regulations

CIVIL AERONAUTICS BOARD
WASHINGTON, D. C.

CIVIL AIR REGULATIONS DRAFT RELEASE NO. 58

SUBJECT: Suggested new Part 42 of the Civil Air Regulations—Non-scheduled air carrier certification and operations rules.

With this Draft Release, the Civil Aeronautics Board is distributing copies of a proposed new Part 42 of the Civil Air Regulations in order that anyone interested may offer comment and express support or objection to particular provisions. The new Part would provide for the issuance of operating certificates and establish rules governing the operations of nonscheduled air carriers.

Safety rules governing nonscheduled air carriers engaged in interstate, foreign, and overseas operations have been under consideration by the staff of the Administrator and the Board since 1945, but due to wartime conditions they have been held in abeyance until recently, pending the resumption of more normal civil aircraft operations. With in the past year the Board has held public hearings in order that proper determination could be made as to the need for economic and safety regulations of this type of operation. The Civil Aeronautics Act of 1938 requires any person engaging in nonscheduled air carrier operations in interstate, foreign, and overseas commerce must hold an air carrier operating certificate. In view of the marked increase in commercial aviation operations, it now appears appropriate to provide the rules for the issuance of such certificates and the rules for operating these carriers.

During the development of this proposed Part many recommendations for rules and operating procedures were received. Many of these proposals differ materially from those contained in the new Part. To obtain your comments and to focus attention upon certain points upon which comment is particularly desired, this Draft Release includes some of these recommendations as possible substitutions for particular provisions of the proposed Part.

As an aid in bringing comment into comparable and readily usable form, you are asked to identify your comment by specific reference to the numbered sections of the Part and to the lettered sections of the Draft Release. Any additional comment which you wish to make concerning sections not covered or specific suggestions you may have about the proposed new Part will be welcomed.

(A) 40.08 Issuance of operating certificates

Should the regulations provide that the operating certificates for the types of Service and Operations Ratings be follows:

- (a) Service
 - (1) Cargo.
 - (2) Passenger.
 - (3) Cargo and passenger.
- (b) Types of operations
 - (1) CFR day—land.
 - (2) CFR night—land.
 - (3) CFR day—water.
 - (4) CFR night—water.
 - (5) CFR day—water.
 - (6) CFR night—water.
 - (7) CFR night—water.
- (8) Should the rating of single engine equipment be limited to
- (9) Operation within 500 miles

of the operating base when equipped with engines having less than 100 horsepower?

(10) Should the regulations provide that the operating certificates for the types of Service and Operations Ratings be follows:

(a) Service

- (1) Cargo.
- (2) Passenger.
- (3) Cargo and passenger.

- (b) Types of operations
- (1) CFR day—land.
- (2) CFR night—land.
- (3) CFR day—water.
- (4) CFR night—water.
- (5) CFR day—water.
- (6) CFR night—water.
- (7) Should the rating of single engine equipment be limited to
- (8) Operation within 500 miles

less all aircrafts are equipped with parachutes?

(9) Shall pilot time flown in other than commercial operations be counted against the maximum allowable pilot hours specified in § 42.21?

(10) Shall the carrier be required to use pilots with the experience required by § 42.23, only when the flight is 500 miles or more from the operating base? (11) Should cathodic commercial flights with less experience to be used for flights of less than 500 miles?

(12) Shall the carrier be required to use pilots who have held an airman's license of flying over 200 hours in the last 12 months in an overwater type of operation?

(13) Shall pilots operating aircraft more than 800 miles from the operating base be required to meet the first class physician standards prescribed in Part 33 within each calendar month?

(14) Shall the carrier be required to have a second pilot on an aircraft when the first pilot is required to fly it more than 8 hours during any consecutive 16-hour period?

(15) Shall the carrier be required to use a second pilot on an aircraft determined by the general character of the terrain adjacent to the base airport, the type of aircraft, and the navigational aids available?

(16) Shall the carrier be required to have its own ground facilities, including fueling facilities, to locate its operations within the area where these facilities are available?

After the receipt of the written comments and on a schedule to be announced, the Board will hold such meetings as the comments require. These meetings are to discuss any important differences of opinion. Soon thereafter the regulations will be adopted as such form as may then appear appropriate.

Comments on the proposed new Part, carefully drafted from all interested parties, should be addressed to the Civil Aeronautics Board, Commerce Building, Washington 25, D. C., and mailed as soon as possible in Washington and later than October 1, 1945.

Fred A. Touson, Secretary

PART 42—NON-SCHEDULED AIR CARRIER CERTIFICATION AND OPERATION RULES (Proposed)

- 42.0 Certificates.
- 42.00 Issuance.
- 42.01 Conditions.
- 42.02 Duration.
- 42.03 Display.
- 42.04 Inspection.
- 42.1 Aircraft requirements.
- 42.10 General.
- 42.11 Oxygen apparatus.
- 42.12 Emergency equipment.
- 42.13 Required instruments and equipment.
- 42.14 Inspection.



TRAPPED BRITISH BURMA UNITS SAVED
FROM SURRENDER BY

Curtiss Commando Transports

The high tide of the Japanese invasion found many British ground forces surrounded by jungles and deep roads blocked. Bridges down—supplies exhausted, they were completely cut off.

There was one lifeline neither name nor the Japanese could cut—Curtiss Cargo Commando pilots flying Curtiss Commando transports.

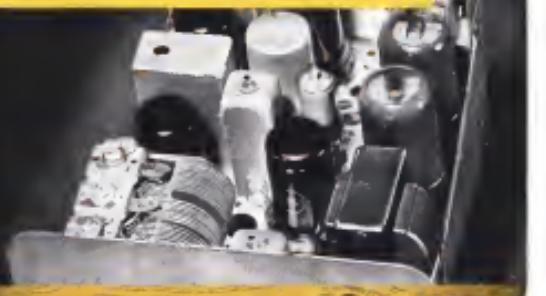
These world's longest, fastest twin-engine carriers roared in low over isolated clearings, cascaded burlap-wrapped bundles of food, medicine and ammunition to the beleaguered men below—kept them flying when all other means failed—kept them alive to fight free of the enemy.

All over the world, all through the war, Curtiss Commandos have flown under every condition, delivered anything needed anywhere in the cause of victory.

Once that full victory is attained, watch these famed air carriers make equally creditable contributions to peace-time commerce. Their speed, dependability and economy will carry them front rank in the fields of air travel and air trade.

The PXer

by LEAR, Incorporated



A New Low-Cost Transmitter-Receiver for the Private Flyer

As soon as the last came down, private flyers will have available a new high-efficiency radio such as they've never seen before—the Lear PXer.

All of Lear's experience with private radio since 1930, plus the great advances made during the war, are reflected in this new, compact, low-weight radio instrument.

It is fast-reacting, easily installed, dependable, and low in cost.

It's a transmitter-receiver. It can be ordered. Perhaps you would like to be distributor for it and other Lear Radios. Some valuable territories are open to qualified representatives.

If you are interested, get in touch with us. Write LEAR, Incorporated, Aircraft Sales Department, 115 East, N. W., Grand Rapids 2, Michigan—Phone: 6-9651, Ext. 52.

LEAR RADIO



- 42.14 Maintenance.
- 42.15 Pilot requirements.
- 42.16 First pilot rating.
- 42.17 Flight time limitations for pilots.
- 42.18 Certification and expenses.
- 42.19 Recent flight experience.
- 42.20 Flying flight time.
- 42.21 Flight operation rules.
- 42.22 Maintenance.
- 42.23 Flight plan.
- 42.24 Instrument and equipment serviceability.
- 42.25 Fuel supply.
- 42.26 Weather allowances.
- 42.27 Flight altitude rules.

- 42.28 Flight conditions.
- 42.29 Instrument approach and landing rules.
- 42.30 Miscellaneous rules.
- 42.31 Pilots at controls.
- 42.32 Administration to pilot complaints.
- 42.33 Airports.
- 42.34 Postal.
- 42.35 Emergency flights.
- 42.36 Reports.
- 42.37 Definitions.

The following regulations are prescribed for noncheduled air carrier operations in interstate, domestic, or foreign air transportation:

42.0 CERTIFICATE

42.01 Issuance. An air carrier operating certificate prescribing the type of noncheduled operations and the operating specifications and limitations set forth in this Part may be issued in the interest of safety to be issued by the Administrator to a properly qualified applicant who demonstrates that he is capable of conducting the proposed operations in accordance with the minimum requirements hereinafter specified. Application for a certificate or application for amendment thereof shall be made upon a form prescribed and furnished by the Administrator.

42.02 Compliance. All operations must be conducted in accordance with the specifications of the air carrier operating certificate and the

rules contained in this Part.

42.03 Duration. An air carrier operating certificate will remain in effect until canceled, suspended or terminated, or until terminated in effect by the Board, after which it shall be surrendered to the Administrator upon request.

42.04 Display. The air carrier operating certificate must be exhibited at the airport of each place of location by an authorized representative of the Administrator.

42.05 Inspection. An authorized representative of the Administrator shall be permitted at any time and place to make inspection or investigation to determine the operator's compliance with the Civil Air Regulations.

42.06 Maintenance. All operations must be conducted in accordance with the specifications of the Civil Air Regulations.

42.1 AIRCRAFT REQUIREMENTS

42.10 General.

(a) Aircraft must be certificated in accordance with the airworthiness requirements of the Civil Air Regulations.

(b) Multiclient aircraft shall be:

- (1) equipped so that engine ignition may be promptly stopped in flight;
- (2) capable, with any one engine inoperative, of maintaining 100 feet per minute climb at 8,000 feet above sea level;

(c) Single engine land aircraft, except for takeoff and landing, shall not be operated over water beyond safe power-off gliding distance from shore.

(d) Single engine sea aircraft, except for takeoff and landing, shall not be operated over land beyond safe power-off gliding distance from shore.

(e) Single engine aircraft shall not be operated at night or under instrument flight rules, except under conditions specified in the air carrier operating certificate.

(f) After December 31, 1967, single engine aircraft shall not be flown at night or under instrument flight rules.

42.11 Oxygen apparatus.

(a) Aircraft operated at an altitude exceeding 10,000 feet above sea level must be equipped by the operator so that 30 passengers or at an altitude exceeding 12,000 feet above sea level for any length of time shall be equipped with effective oxygen apparatus and an adequate supply of oxygen available for the use of the operator, crew and passengers.

(b) Aircraft operated at an altitude exceeding 10,000 feet above sea level, except for takeoff and landing, shall be equipped with an adequate supply of oxygen available for the use of passengers when operated at an altitude exceeding 12,000 feet above sea level.

(c) Aircraft equipped with oxygen apparatus. Aircraft flying high altitudes over unpopulated terrain must carry such additional emergency equipment as the Administrator deems necessary for the particular operation involved.

(d) Aircraft equipped with oxygen apparatus, except for takeoff and landing, shall not be operated over land beyond safe power-off gliding distance from shore.

(e) Single engine aircraft shall not be operated at night or under instrument flight rules, except under conditions specified in the air carrier operating certificate.

(f) After December 31, 1967, single engine aircraft shall not be flown at night or under instrument flight rules.

addition, all aircraft operated for long distances over water shall be equipped with a sufficient number of life rafts to accommodate adequately all occupants, and such additional emergency equipment as may be required by the Administrator.

42.12 Required instruments and equipment. The following instruments and equipment for the type of operation specified shall be installed:

(a) CTR (day):

- (1) instruments and equipment specified in § 42.30 (a);
- (2) one fire extinguisher and on multiplace aircraft, a fire extinguishing system to serve each engine compartment;

- (3) one or more storage batteries, one other source of electrical supply, sufficient to operate all radio and electrical equipment necessary for the flight;
- (4) two-way radio communication system and navigation equipment appropriate to the ground facilities to be used;
- (5) 3 space bags for each occupant used in the aircraft, or 35 percent of the number of each capacity, whichever is greater;
- (6) first-aid kit adequate for the type of operation involved;

(b) CTR (night):

- (1) instruments and equipment specified in § 42.12 (a) and (b);
- (2) 1 set of instrument lights;
- (3) an electrically heated pilot takeoff survival pack pilot's survival pack;
- (4) one sensitive type altimeter;
- (5) one gear-cut-off/takeoff indicator combined with height indicator;
- (6) one gyro direction indicator;
- (7) one outside air temperature gauge with indicator in pilot compartment;
- (8) one exhaust air temperature gauge or equivalent approved device;
- (9) one clock with sweep-second;

- (10) if vacuum gauge is used, one vacuum gauge with venting indicator on the instrument panel installed in line leading to the rate-of-climb and gyro direction indicator;
- (11) IFR:

 - (1) instruments and equipment specified in §§ 42.12 (a) and 43.30 (c);
 - (2) 1 additional radio receiver with direction finder;
 - (3) 1 additional sensitive type altimeter;

42.13 Maintenance. The air carrier shall provide maintenance facilities, personnel, and an inspection system adequate to maintain all aircraft in a serviceable condition. All repairs, alterations, and overhauls shall be performed as aeronautics

with Part 14. The air carrier may contract for maintenance with an appropriately rated certificated repair agency.

42.2 PILOT REQUIREMENTS

42.22 First pilot rules.

(a) **Pilot in command.** The first pilot in command of the aircraft at all times during flight and is responsible for the safety of persons and goods carried and for the conduct and safety of members of the crew.

(b) **Contact test.** Immediately prior to flight, the first pilot in command shall contact the flight controls to the full limit of travel, such engine individually, at run-up again, check the engine instruments and as many as possible of the flight instruments.

(c) **Preflight checks.** Prior to commencing a flight, the first pilot in command shall familiarize himself with the information necessary for the safe operation of the aircraft on the route to be used and en route.

42.23 Emergency authority.

(a) The first pilot in command is responsible for the aircraft in which he appears necessary in emergency situations which, in the interest of safety, require immediate decisions and action. He may, in such situations, deviate from published methods, procedures, or requirements for aircraft operation by considerations of safety. When such emergency authority is exercised the pilot shall keep the proper control station fully informed regarding the progress of the flight.

(b) In an emergency requiring use of the aircraft for a landing at a weight in excess of the authorized landing weight, the first pilot may elect to follow whichever procedure he considers safer.

(c) **Flight equipment.** Before any flight is entered, the first pilot shall check the following:

(1) current flight and navigation facility maps for the area over which the flight is to be conducted;

(2) instrument approach procedures, flight plans which are to be used when flight under instrument flight rules is authorized;

(3) the latest weather reports and forecasts made by the U. S. Weather Bureau or by a source approved by that Bureau when available for the area to be flown.

(4.21) **Flight time limitations.** In addition, the pilot must not pilot aircraft in excess of:

(a) in air transportation—26 hours in any 7-day period; 96 hours in any one month; 1,093 hours in any one year; or

(b) total commercial flying time—300 hours in any one month; 1,200 hours in any one year. If more than 10 hours are flown in any 24-hour period, a complete rest from flying for 18 hours must be taken.

appropriately rated certificated repair agency.

42.33 Recent flight experience.

(a) **General.** No pilot shall serve as first pilot in uncrewed air transportation unless within the preceding 90 days he has made at least 3 take-offs and landings to a full stop during each period within the preceding 90 days.

(b) **Instrument flight.** A pilot shall not serve as first pilot in uncrewed air transportation unless he has made at least 6 hours of instrument flight under actual or simulated flight conditions during the preceding 6 months or until he has requested.

42.34 Logging flight time.

(a) A second pilot may log the total flight time performed during his command of the aircraft.

(b) A second pilot may log the total time during which he serves as second pilot.

(c) Additional pilots when required, or second pilots, may log 50 percent of the total flight time.

(4.25) **Logging instrument flight time.** Instrument flight time may be logged as such by the pilot actually manipulating the controls only when the aircraft is flown safely by reference to instruments either under actual or properly simulated flight conditions.

42.3 FLIGHT OPERATION RULES

42.33 Fuel supply.

(a) **Flight under contact flight rules (CFR).** A flight shall not be started unless the aircraft carries sufficient fuel, considering the wind and other weather conditions expected, to fly to the next point of refueling and thereon for a period of at least 45 minutes at normal cruising consumption.

(b) **Flight under instrument flight rules (IFR).** Sufficient fuel and oil, considering the wind and other weather conditions forecast, shall be carried:

(1) to complete the flight to the point of first intended landing, and thereafter;

(2) to the alternate airport, and thereafter;

(3) to a normal cruising consumption for a period of 45 minutes.

(c) **Weather minimums.** No flight may be started unless the current weather reports and forecasts show a ceiling indicating that the altitude and weight of the aircraft of intended landing, and will remain at or above the minimum specified below.

(d) **Contact flight operations (CFO).**

(1) ceiling—2,000 feet;

(2) visibility—3 miles.

(e) **Instrument flight operations (IFR).**

Radio Out of a Hat!



Radio equipment of simplified design, the model 100, is the latest development of the company's radio engineering laboratory.

88 DAYS FROM DRAFTING BOARD TO FLIGHT LINE

Germany stunned the world in '39 with their blitzkrieg. At exactly the same time another blitzkrieg was quickly being made by the Canadians in this country. They needed airplanes and radio communication equipment—fast.

The airplanes they got...and the radios. There were less than 90 days left when Pacific Division got the go ahead for transmission and telephone equipment that had not even been designed.

In 88 days Pacific Division designed...developed...and delivered a quantity of 100-watt master oscillator transmitters for low and high frequency...amplifiers for the interphone...and engineered and installed these and all other radio equipment in the Canadian airplanes.

We at Pacific Division would rather not accept any more orders that we have to pull out of a hat. But we are open for business, especially VHF Communication Systems in which we specialize, that demands experience, ability and resourcefulness. Your inquiries are invited.



Quality control in the factory of all Pacific Division manufacturing processes.



Pacific Division's experience, ability and resourcefulness in the design and manufacture of radio equipment for aircraft. Their future VHF communication systems will be manufactured in volume.



100-WATT COMMUNICATION SYSTEMS

OPERATING SIX VHF EXPERIMENTAL STATIONS

AVIATION NEWS • August 27, 1945

- (1) ceiling—500 feet,
- (2) visibility—1 mile,
- (3) straightaway ceiling—1,000 feet; visibility—3 miles.

42.26 Flight altitude rates.

42.26 **Flight altitude rates.** Except during take-off and landing, the altitude of the aircraft in flight, except as may be otherwise authorized, shall not be less than 500 feet from any obstacle in flight, except in such cases as may be specifically authorized.

(b) Night (CPR) or instrument (IPI) operations. Except during take-off and landing, the altitude of the aircraft in flight shall be flown at an altitude of less than 1,000 feet above the highest obstacle located within 5 miles either

42.4 MISCELLANEOUS RULES

42.46 **Pilot of aircraft.** In the case of aircraft requiring two or more pilots, two pilots must remain at the controls at all times while landing and taking off, and while the aircraft is in flight, except when the second pilot is necessary in connection with his regular duties or when he is replaced by a person authorized under the provisions of § 43.43.

42.47 **Administrator is pilot supervisor.** The pilot supervisor, the chief engineer, the chief pilot, or any other person, other than a new member, a check pilot, an inspector of the Administrator in person or by telephone, or a person whose admission is approved by the first pilot, may be admitted to the pilot compartment. In the latter case, the first pilot must remain at the controls.

42.48 **Airports.** Airports or landing areas used must be of sufficient size so that the taking off and landing run of the aircraft will not require more than 10% of the effective length of the area available for taking off or landing. The effective length of the area should be determined by making allowances for contributions to the take-off and landing run by the aircraft in ground effect, a 10 to 1 glide in CPR operations, and a 40 to 1 glide in DTR operations.

42.49 **Normal.**

(a) When required by the Administrator, the air carrier shall furnish a manual for the use and guidance of operations and maintenance personnel which contains full administrative necessary to good flight and ground personnel in the conduct of operations and to inform such personnel respecting their duties and responsibilities. It must be in a form approved by the Administrator and furnished to all persons designated by the Administrator or Board. All copies must be kept in the office.

(b) A flight check-off list shall be furnished for and maintained in the pilot compartment of the aircraft.

(c) Any changes required by

use of the course intended to be flown.

42.50 **Flight conditions.** Aircraft must not be started or flown into known or likely severe conditions and may be flown into known or likely severe conditions only if the aircraft is equipped for flying wings and propellers and such other parts of the aircraft as are essential to safety.

42.52 **Instrument approach and landing rules.** Unless otherwise taken off and landing, the aircraft shall be flown at an altitude of less than 1,000 feet above the highest obstacle located within 5 miles either

the transportation of persons or medical supplies, the rules contained herein regarding type of aircraft, equipment, and weather minimums to be observed in instrument flight conditions. Provided, that within 48 hours after the pilot returns to his home he shall file a report to the Administrator setting forth the conditions under which the flight was made, the necessity therefore, and giving the names and addresses of crew and passengers.

42.55

Reports. (a) Each carrier shall keep the following current reports and inspect in all aircraft aircraft engines, propellers and, where practicable, appliances used in air transport:

- (1) total time and service,
- (2) time since last overhaul,
- (3) time since last inspection,
- and
- (4) such other data as the Administrator may deem necessary for safe operation.

(b) All annual operations report must be submitted on the form approved by the Administrator for this purpose not later than the 20th day of January of each year.

42.9 DEFINITIONS

(a) Air carrier means any airplane of the United States who undertakes, whether directly or indirectly, by a lease, or by any other arrangement, to engage in air transportation.

(b) Interstate, overseas, and foreign air transportation means the carriage by aircraft of persons or property as a common carrier for compensation or hire or the carriage of persons or property for compensation between the following places: a place in any State of the United States or the District of Columbia and a place in any other State of the

United States or the District of Columbia; places in the same State of the United States through the air space over any place outside thereof; a place in any State of the United States or the District of Columbia or in any other place in the possession of the United States; a place in a Territory or possession of the United States and a place in any other Territory or possession of the United States; or a place in the United States and any place outside the United States, whether such places are carried wholly or partially by aircraft and partly by other forms of transportation.

TELLING THE WORLD

• Ken-Rad, Overholt Ky., manufacturer of metal self-shielding radio receiver tubes, will resume its national trade advertising through Mason, Inc.

• Special advance proofs of an article entitled "The New Transport Plane," first of a series of articles to be carried by *Forbes* magazine, have been distributed.

• John S. Walker has resigned as vice-president of Altron Manufacturing Corp. to have his own firm, John S. Walker and Associates, Public Relations Consultant, with offices in New York City. He has acquired control of Schlesinger, S. A., a public relations firm in Mexico City and will coordinate its services

with those of his New York organization. Walker was for ten years a vice-president of Transcontinental and Western Air, Inc., and assistant to the president of United Air Lines and in charge of eastern public relations.

• Miles C. M. McKeon has joined Foster and Dewey, Inc., advertising agency in Cleveland, to write a new General Electric aircraft lighting campaign in trade magazines and 187 newspapers in 139 cities. Work on the General Electric national lighting campaign will include aircraft and aircraft lighting



12 seconds of the most valuable time "on earth!"

Jet assisted take-off, born of war, will be commercial flying's greatest single aid when final peace comes. Directly adaptable to any type of airplane ... capable of flying maximum payloads out of nearly any field at any altitude ... Jet Assistance is the solution to the airlines' problem of getting profit payloads off the ground. The 12 seconds average thrust duration of

Aerojet Assistance is worth much to the operator who looks extra profits.

Aerojet Engineering Corporation has made many thousands of jet assistance units (Jaats) for the Army and Navy. In research and develop-

ment facilities are unequaled. Aerojet invites inquiries from any organization interested in learning more about this new science. An informative booklet, "Report from Aerojet" — has been prepared. Write for it today.

With Jet Assistance, Delta Air
Brought Back 100% of Flight
Power - 100% Profits

Without Jet Assistance, Good
Air Resistance Takes Off Right
From - 100% Profits

100% Profits as Described in "Report from Aerojet"



Send today for your FREE copy of "Report from Aerojet" — a factual story of advances and vital aircraft to peace in question.



Aerojet Engineering Corp.
300 West Cypress Creek
Fort Worth, Texas

Aerojet Engineering Corporation • Affiliate of THE GENERAL TIRE & RUBBER CO.

AeroJet

PERSONNEL

R. E. Montgomery To Aid TWA Board Chairman

Robert E. Montgomery (photograph, formerly director traffic manager for

TWA at Pittsburgh), has re-

joined the company as special assistant to T. B. Wilson, chairman, TWA, Inc., since October, 1944. He served in Los Angeles as assistant chief of planning and traffic for the Western division of TWA during 1943, and was awarded the Legion of Merit for his work. Relocated to this capacity with the rank of lieutenant colonel, Montgomery was assigned to the Ferrying Division of ATC at Cincinnati where he has been on duty as assistant chief of planning and traffic for the Western division until his release from active duty August 3.

A. D. Palmer, Jr., has resigned from his position as director of public and internal relations of Curtiss-Wright Corp., in St. Louis.

Robert A. Terry has been appointed sales manager of the Sky Products

Division of Evans Products Co., where he will direct the sale of aircraft glaze equipment. Palmer has been employed with Evans a year ago, he was with the Service Department of Ford Motor Co.

Frank E. Lehman has been named city manager for the new branch office in Charleston, and will make his headquarters in the company's new downtown ticket office in the Festus Mason Hotel building.

John Koeniger is now traffic representative for Mid-Continent Airlines in Minneapolis.

Russell H. Whisman has been appointed manager of the aircraft maintenance department of the newly-organized Mid-Continent Airlines. Whisman, formerly with Mid-Continent in 1939 and spent his first five years with the company at the home office "Midwest" division.

New Mid-Continent "Dynamic" Book replaces Peggy Kelleher as chief historian for Continental Air Lines.

John A. Allwood, Jr., executive vice-president and general manager of Lockheed Air Transport, has been elected chairman of the board of directors of that company. Mr. Allwood has been connected with Lockheed since 1932, serving as consultant on gearing and gear-

box mechanical problems. In July 1944 he was called to the company's home office in Piqua, Ohio, as executive vice-president, and in October also assumed the post of general manager.

Fred W. Parker (photograph) has joined the public relations staff of Pennsylvania-Central Airlines as assistant to Ray Beck, director. Former war correspondent, he also served the European Theater of Operations in England for International News Service. Parker has been with the staffs of the United Press, the Louisville Times, Associated Press Photo Service, and the Poughkeepsie Evening Star.

J. A. Thomas has been appointed executive assistant to John A. Coffey, transportation manager, manager of Transoceanic and Western Airlines. Thomas has been transportation manager of the Midwest region since November. Prior to that he was serving as a lieutenant commander in the Navy.

Donald M. Steele, manager of Lockheed Air Transport, has resigned to enter a private manufacturing business. He is replaced by Robert V. Brown, assistant manager and supervisor at the Burbank Airport.

Richard E. Bush has been granted a leave of absence from All American Aviation, Inc., to assist the department of Commerce in research programs necessary to the publication of bulletins on the post-war outlook for employment and business opportunity in aviation. Bush is engineer consultant for All American.

R. H. Brown, formerly manager of the research and service department of the Cincinnati Wright Aeronautical plant, has been appointed manager of the Washington office of the Curtiss-Wright Corp. Brown succeeds Richard S. Anderson who has been transferred to the Portland, Ore., N. J., headquarters of Wright Aeronautical Corp., subsidiary of Curtiss-Wright. As administrative assistant to **William Kennedy**, vice-president and general manager Brown has been with Wright since 1930 and was assigned to the Cincinnati plant in 1939.

S. T. Kirkham who has been field manager of the Portland Cement Association, with headquarters in Minneapolis, Minn., will become deputy Minnesota commissioner of agriculture, succeeding **William B. Kunkel**, who resigned last February.



MR. ENGINEER: Here's a combination that will stop a truck

The unit is a Bendix "Hydrovac". A one-unit vacuum power braking system, it is used on trucks, tractors or buses equipped with hydraulically actuated brakes. It is a tandem piston power master cylinder for transmitting hydraulic pressure to the brake cylinders. Because it eliminates the need for external hoses or linkage, it must be absolutely dependable under all operating conditions. And, that is where those Sirvis leather packings come in. Bendix engineers had to be positive about the vacuum retention of the packings they specified ... So, they called upon Chicago Rawhide. Our Sirvis engineering department developed the correct packings for the purpose, and two go into each "Hydrovac" cylinder. Made from special, low friction

Savin-Rutan leather, they are treated to make them impervious to air and oil. After submission to 24-hour temperature tests, ranging from -30° to 180° F., they are given tests in which they must hold vacuum as well as before the temperature trials. Obviously, the design of these Sirvis leather packings is specially developed for their purpose. If you have an engineering problem involving unusual precision, particular pressure or temperature conditions, or any other requirements for packings, washers, boots, gaskets, or similar mechanical leather products, be sure to call upon Chicago Rawhide engineers. Just as they have served Bendix and other industrial leaders, they can help you, too ... And, careful production control insures you unduplicated consistency of quality.

SIRVIS

MECHANICAL LEATHER

A Product of

CHICAGO RAWHIDE MANUFACTURING CO.
1305 Elston Avenue

Chicago 22, Illinois

Washers • Packings • Plates • Gaskets • Cylinders • Hose
Latches • Seal Washers • Discs • Discoid • Perlon • Contact • Pads

OVERSEAS SURPLUS INSPECTION TRIP

A group of officials from the Office of the Army-Navy Liquidation Commission inspect planes and aircraft surplus during a recent tour of European and Asiatic theaters. Left to right: Lt. Gen. Edward M. Mordacq of the RPA; Col. Edward Schenck; Brig. Gen. J. H. Roach, commanding general, USAF Base Air Depot No. 1; Henry C. Flousier, Jr., public relations; Brig. Gen. William R. Gruber, General Field Commissioner; James S. Kresselton; and Lt. Col. John F. Trope.

The FRIENDLINESS of Flight

International flight fosters international friendships. As air service expands there will develop closer relationships, and better understanding among people and nations.

Coordinated air service, such as planned by Braniff Airways between the Americas, will weld together in good will the people of the Western Hemisphere. Increased trade with all its benefits will surely follow.

BRANIFF AIRWAYS

Brill-Braniff, Inc.
American Aviation Board, U.S.

PRODUCTION

Aeronautical Board To Replace APB, Two Administrative Units

Little known but powerful unit slated to assume top role in design and production as head of cooperative planning between Army and Navy aviation.

The little known but highly powerful Aeronautical Board now moves into the picture of aircraft design and production as the top instrument of cooperative action between Army and Navy aviation.

It is to replace the Aircraft Production Board and its two administrative arms—the Aircraft Resources Control Office, and the Aircraft Scheduling Unit.

Approval—Such recommendations now are being considered within the government and there is every likelihood that they will be acted upon affirmatively.

The Aeronautical Board has existed throughout the war, and prior to its birth, but precisely all of its functions and policymaking powers were exercised by APB. It is an agency appointed by and directly responsible to the President. Its members are composed of high-ranking Army and Navy officers.

Its functions have been and will be, according to current plans, concerned with two level determinations of joint specifications for aircraft produced by the Army and Navy, and other policy-making decisions for the joint aircraft program.

Weak Point—Dissolution of APB, ARCO, and ASU is based on the fact that these agencies have completed the work which was laid out for them late in November, 1942, by the Army, Navy, and WPA. At that time it was agreed to give APB complete jurisdiction over the production effort of the services and industry. On December 9, 1942, a general administrative order was issued officially establishing APB and it was assigned the job of preparing and any further revision of aircraft production programs. The scheduling of planes and components, and to study and take action in any field affecting the realization of aircraft production schedules.

It was the champion of the aircraft industry in every determination of policy in any of the war agencies. It took the responsibility for seeing that aircraft plants were properly resupplied.

ARCO officers say frankly that one of the secret reasons the agency's success was that its organization was so compact and unusual that few persons really understood it and therefore hesitated to contest its claims. The general activities of ARCO were tied in with related activities of WPA and the APB. ARCO representatives maintained liaison with WPA industry divisions, usually having offices in those divisions.

The main function of the ASU was to provide a sole Government contact with the aircraft industry in determining its requirements and allocating materials and facilities for the joint air program.

ARCO directed activities of ASU which was located at Wright Field, Dayton, O. It also gathered information from contractors and published them and coordinated standardization and conservation measures.

Good Record—Through the merger the Army and Naval Aviation achieved a remarkable and effective degree of coordination and cooperation. ARCO became a powerful agency in Washington and, manned by government and corporate officers, it usually got a lion's share of the materials and resources "pig" throughout the

war. When the aircraft production program started to deteriorate several months ago, the abolition of APB, ARCO and ASU was considered but a determination was made then to continue it throughout 1945 and open the matter up for review again in December. Final victory is causing a much earlier liquidation.

Current members of the Astro-



STILL IN PRODUCTION!
Assembly line of P-51 Shooting Stars which, despite sweeping Air Force cancellations following Japan's surrender, will continue to be manufactured by Lockheed.

nautical Board are: General of the Army M. H. Arnold; Maj. Gen. E. M. Powers, assistant chief of staff; Col. J. B. Cary, member of operations division, general staff; Vice Adm. R. H. Smith, admiral, deputy chief of Naval Operations (Air); Capt. L. M. Moreau, director of Aviation Planning Division, Naval Operations; Capt. Y. C. Lomax, director of engineering, Bureau of Aeronautics and Col. Jarvis Butler, secretary.

Bendix Conversion Seen Coming Soon

Although entirely on war work, and with approximately one-half billion dollars in orders subject to cancellation at war's end, Benda Aviation Corporation can convert to civilian production a relatively short time, president Ernest B. Hirsch said.

He said availability of necessary materials would be the determining factor. Engaged in manufacture of subsonic aircraft engines before the war, Bendix war production was also of an aeroelastic nature. Little difficulty, therefore, is anticipated in tooling or training labor.

Radio Set—The company is ready to start almost immediately

Tool Removal

The Army and Navy are drawing up tool plans for drawing up aircraft contractors' plants of machine tools and other facilities which are the property of the AAF and the Bureau of Aeronautics. The services are estimating their costs in excess of \$150,000,000 worth of machine tools and buildings used by these contractors. This is exclusive of the much greater amount of facilities in the aircraft manufacturing programs which are owned by DPO. The MPC will have to handle the disposition of these facilities.

Current plans are to clear all such facilities from the contractor's establishment within 40 days from the time the contractor requests removal.

Contractor's removal of tools is to the contractor or removed and discontinued to another party. The services have placed considerable emphasis on determining a policy in this matter and in securing a staff adequate to do this work quickly.

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A slight increase in actual net earnings for the six months ending May 31, 1948, over the similar period a year ago, is reported by The Aviation Corp. After deduction of all charges, net was \$1,469,260, or 37 cents per share.

While the net reported a year ago was \$2,317,853, or 49 cents a share, adjustment for reorganization would have reduced this to \$1,309,353, or 36 cents a share.

the production of peacetime radio equipment.

One problem facing the com-

Nazi Turbines for Jetplanes Listed

Budgetaries	Type & Capacity	Weight	Performance	Fuel Consumption	Remarks
KMW 300 BBC	Turboprop, axial compressor, single-stage, 1000 lbs. 18 hours	1,200 lbs.	Stall thrust, 1,700, 1,800 lbs. Turbine, 1,600, 1,800 lbs. 100% fuel	2.000 lb/hour	Present, Japan, 1945 Temporary, Asia, 1946 100% exhaust possible
BMW 010	12-stage axial compressor, 3-stage turbojet, 1000 lbs. 18 hours	—	Anticipated, static thrust of 8,000 lbs. **	—	Present, under development, not completed.
BMW 011	12-stage axial compressor, 3-stage turbojet, 1000 lbs. 18 hours	7,700 lbs.	Present, to be delivered to polish, 8000 lbs. **. Expected to be 100% after 12,000 hrs.	3,150 lb/hour	Present only
Jumo 004 B	Single axial compressor, single-stage turbojet, 1000 lbs. 18 hours	1,500 lbs.	Present, 100% 1,200 lbs. 1,200 lbs. 1,500 lbs. 1,600 lbs. 100% fuel	2.000 lb/hour	Present, Japan, late 1945 Temporary, Asia, 1946. Japan 100% exhaust possible
Jumo 021	12-stage axial compressor, 3-stage turbojet, 1000 lbs. 18 hours	4,400 lbs.	Desired thrust, 8,000 in 10,000 hrs.	2.000 to 2.500 lb/hour 100% fuel	Present, under development (to be used in TE 2001)
Jumo 022	Gas only, with gear for constant-speed propeller	—	—	—	Present only
Heinkel-Hirth 011	Single compressor, compressor single stage, 1000 lbs. turbojet, 18 hours	4,000 lbs.	Stall thrust, 2,200 lbs.	800 lb/hour **	Present, Japan, 1945 Temporary, Asia, 1946 100% exhaust possible
Henschel-Hirth 020	011, only rotated by direct gear propeller	—	Anticipated, thrust of 8,000 lbs. at 60 mph.	800 lb/hour **	Present only
Daimler-Benz 003	Turboprop, 1000 lbs. 18 hours	—	—	—	One unit tested in 1945, present, development not completed.

* Budgetary approach to 2,000 lbs. thrust.
** 100% exhaust possible.

** 100% exhaust possible at 8,000 lbs. net in production.

pany, Bresch indicated, was available cash from production. On June 30 of this year, accounts receivable were \$55,200,000 and inventories \$63,891,000—all for war work. While the company presently has a backlog of civilian orders, no income from that source was on the books.

Republic Income Listed

Estimated net income of Republic Aviation Corp. for the six months ending June 30, 1948, after provision for taxes was \$1,599,000, Alfred Bresch, president, reports. This is equivalent to \$1.57 per share on 932,454 shares of outstanding common stock.

Before provisions for taxes and reorganization, income was \$5,892,000, on sales of approximately \$148,000,000.

Aviation Coop. Net

A slight increase in actual net earnings for the six months ending May 31, 1948, over the similar period a year ago, is reported by The Aviation Corp. After deduction of all charges, net was \$1,469,260, or 37 cents per share.

While the net reported a year ago was \$2,317,853, or 49 cents a share, adjustment for reorganization would have reduced this to \$1,309,353, or 36 cents a share.



...and what a show it will be!

We all anticipate the day when people will flock to exhibitions of new-model planes—private planes. "A world on wings" means something more than global air transportation. Revolutionary developments in communications and other electronic equipment—many of them born of war—will stimulate air travel generally. In this field, Western Electric is leading the way.

Buy all the War Bonds you can—and keep them!



Jets Emphasized By Westinghouse

Westinghouse officials are making ambitious plans to enter and remain in the aviation powerplant business. It does not regard its work with gas turbines and jet engines as mere experimental activities carried on as a side line.

Last February, Westinghouse established its Aviation Turbine Division. The services, who so far have been the only customers for jets, have spoken well of the division's progress in development and production. Westinghouse models include the RSA, 11B, and the 24C turbo jet engines.

► **Lead Field:** So far, the manufacturers of the currently-popular, recuperating engines have shown less enthusiasm for jets and have done little in development and production. Because of this, Westinghouse officials feel confident that they are well ahead of the field.

Industry is awaiting eagerly the complete report of the study conducted by U.S. military, naval and industrial technical masters in Germany. All previous indications from these masters are that German research was from two to five years ahead of American science on jet development. Reports and

fragmentary data on German jet and gas turbine research is giving a big boost to this type of development in this country. Some of these returning experts are convinced that the days of conventional representing aircraft engines in this country can be numbered in a very few years.

Airadio To Build Midget Combination

Airadio, Inc., a leading wartime producer of radio and electronic test equipment for the Navy, has released details of one of its bids for postwar business—a compact transmitter-receiver, weighing only 10 pounds, 30 ounces, for private aircraft.

Ready for production at the Stamford, Conn. plant, the Airadio unit provides plane-to-ground communication, radio range, weather and standard broadcast reception, and also serves as an interphone link between pilot and passengers.

► **Card Size:** The extreme compactness of the set requires, says the manufacturer, only a space as large as a postcard for mounting the receiver on the instrument panel. The transmitter, not having to be accessible in flight, can be installed elsewhere in the aircraft.



Midget Radio: The lightweight, compact transmitter-receiver for private aircraft, soon to be made by Airadio, Inc. Among other characteristics, it has a built-in radio range filter in the receiver. When weather or other information is coming in from a radio range station, the range signal can be eliminated by flicking one of the toggle switches on the Los Angeles area.

Patent List

With the cessation of war work, manufacturers seeking new products for civilian aircraft have been forced to search the recently-enriched register of patents established by the Patent Office.

To date, about 300 patents available for sale or licensing are listed in the register. Although the Patent Office has not kept a direct tally of the results, it states that negotiations are in progress for several of the patents listed, and that at least one arrangement has been entered into. Most of the patents included in the register have been filed by small manufacturers or inventors.

McDonnell Leases Surplus Air Plant

In one of the first arrangements of its kind in the surplus plant disposal program, the McDonnell Aircraft Corp., St. Louis, Mo., is acquiring part of the space vacated by aircraft and engine manufacturer, Curtiss-Wright, in the same building at Longwood-St. Louis Field.

McDonnell is leasing the facilities, with a main building containing 1,300,000 square feet, from the Reconstruction Finance Corporation on terms which have not yet been disclosed. Although negotiations for the plant began before the Japanese surrendered, McDonnell delayed upon the move on the basis of post-war uncertainties.

► **Job Blue:** Initially, the company will need but 160,000 square feet of the plant. Later, however, plans call for an increase in employment from 3,000 to 5,000 and the utilization of the entire facility. Peak employment will be reached by January 1, and is expected to extend well into 1948.

James S. McDonnell, president, said the company would continue working on Navy development contracts and would thus require the space being leased from the R.F.C. Other plans embrace commercial aeronautical enterprises.

Since its organization in 1939, McDonnell has turned out \$555-\$550,000 of war work. The move into the new plant will see an operation consolidated for the first time, the company previously having occupied 15 separate buildings scattered throughout the St. Louis area.



PATTERN FOR TOMORROW'S AIRLINES. Along with good planes and pilots, the new regional and local airlines starting in business will need the best and most complete instrument equipment they can buy. Instruments are the backbone of safe operation... the kind of operation our pioneer airlines have taught the public to expect in scheduled air transportation. Instruments also have everything to do with regularity of service, and this regularity of service—round the clock, around the calendar—means not only service to the public but the full and most economical use of the new air carrier's investment in equipment. Tomorrow's airlines will find Kollsman accuracy and dependability important not to the safety, regularity and economy of their operations.

KOLLMAN AIRCRAFT INSTRUMENTS

PRODUCT OF



More Than 5,000 Lightplanes Promised Before Year's End

AVIATION NEWS poll of leading pre-war private plane manufacturers reveals production lines undergoing immediate shift to full commercial output; materials, labor available; merchandising plans expand, progress.

Well over 5,000 new personal aircraft are promised by manufacturers before the end of the year.

In the first full week of peace, lightplane companies last week for the most part hastily shifted gears and started production lines moving again, that time on civilian output.

Plants Cleared—An AVIATION NEWS poll of leading pre-war personal aircraft manufacturers, shows most military orders have been cleared. Plans are sufficiently cleared for civilian production.

Aircraft, labor and materials are available, and the distribution and merchandising set-up is progressing satisfactorily.

In prospect are a widespread distributor and dealer organization, almost universal agreement on concentrations on sales and service—site company reports 390 authorized service centers already signed up; flight instruction will be given free with the purchase of a plane—this being a cardinal plank of all major companies' sales efforts.

One remaining problem, still clouded, is price. Few manufacturers are definite on this point. The labor situation is changing

Shortages

The over-all material situation for lightplane manufacturers is far from good, but not as bad as reported, according to reports of the producers. However, there are some mighty sharp upturns in one, value and engineers are others. Price of instruments and fixtures also is still in question, but because the labor situation has not yet settled enough to enable makers of components to establish costs.

rapidly and so is the supply of materials.

Republic still sticks to a figure of "about \$5,000" for its Seabee amphibian, Blissons built the Voyager 128 at \$3,995. Other companies are not certain.

Here are the approximate amounts of some private aircraft expected to be produced before the end of the year:

Aerospace—550

Taylorcraft—400

Skymaster—3,248 for 1945, 1946.

Piper—1,585

Luscombe—1,393

Few Seabees will come out this year. Company expects to hit its stride next Spring and has 3,900 orders.

Moving in the list is Fairchild. "Our company is not re-entering the private aircraft field at this time," states James A. Wales, Jr., assistant to the general manager. Fairchild still has contracts for its Packet cargo plane and will require all labor and materials for that "for some time to come."

The first plane to come is the out-of-control Engineering and Research Corp. makers of the Escapade. It is learned, however, that a fair-flame distributor organization has been formed and that the company has resumed production of the spin-proto plane.

Culver—Culver Aircraft Corp. is still heavily committed on government work, with only one-third of its war contracts cancelled. Although these will not be completed until June, 1946, the company will be able to devote some space and personnel to the production of its personal plane, claimed as the only entirely new aircraft to be offered for the immediate future.

While still withholding full details of the Culver model, the company does concede it will have an electrically-operated, retracting, tricycle landing gear, 65-hp. Con-



Recent Lightplane Orders: Typifying the mounting plans, ambitions and prospects of lightplane manufacturers is this picture of the signing of what is believed to be the largest check for a single order of lightplanes (AVIATION NEWS, August 26). The check for \$1,000,000 was signed by Howard Brouse, general manager, Western States Aviation Co. The planned recipient, James C. Welch, sales director of Blissons, whose Voyager 128 is the subject of the sketch.



ANY SMOKESTACKS TO PAINT?

The tricky job of painting high smokestacks is one of many suggested to us for helicopters to handle. All that would be needed is a hose and nozzle leading from a paint tank inside the fuselage, operating while the aircraft leisurely circles the stack from top to bottom.

An apple-grower writes us, outlining the possible advantages of helicopters to dust his orchards.

A South American government would like a fleet of helicopters, in order to maintain and spray the sources of leeches which now destroy valuable crops.

Beaches wear helicopters for such work as taking cattle carcasses on their way to market—dropping salt for their grazing stock—distributing fish grub to dinner-round-up crews in rough country.

Hundreds of business executives have written to us here at KELLETT Aircraft, to point out ways in which they think postwar helicopters might be useful. Ques-

tions of weight, range, cost and mechanical reliability make some of these ideas impossible to execute at the present stage of helicopter progress.

However, the number and diversity of these possible interests is with the future possibilities of an aircraft which can hover or take off from and land vertically in any area large enough to permit the sweep of its revolving rotor blades.

We continue our part of the job as designers and engineers, confident that, with further development of helicopter types, American businessmen will determine many applications in transport and industry where only the helicopter can serve to cut costs, give dependable service and make work more productive.

In consultation with such executives, our development program is taking shape today.

KELLETT Aircraft Corporation, Upper Darby (Philadelphia), Pennsylvania

KELLETT HELICOPTERS *

G.E. POWERS THE

"Shooting Star"



For all its simplicity, the aircraft gas turbine was one of the toughest engineering jobs G.E. ever tackled. There were the metallurgical problems posed by the terrific temperature extremes and mechanical stresses encountered. Combustion had to be confined in one thousandth of the volume per hr required by a power-plant boiler. A fuel system had to be devised that could give uniform performance from sea level to the stratosphere. And the job had to be done fast.

The speed with which G.E. brought the gas turbine to its present state of development is one of the great achievements of this war. It testifies both to the experience G.E. gained in developing the now-famous turbo-supercharger and to the indomitable will to make this phenomenal new kind of power succeed.



AIRCRAFT GAS TURBINES

For War . . . the most powerful propulsion
For Peace . . . the most promising



As the Army Air Forces' newly-organized P-80 streaks through the skies, there flies with her the markings of an unprecedented era of aero progress. For here is not only jet propulsion. Here, as a working reality, is the dream of thousands of engineers—a practical, efficient aircraft gas turbine.

Designed and put into production by General Electric engineers, the revolutionary power plant of the Lockheed P-80 "Shooting Star" has demonstrated far-reaching advantages for fighter planes. It has the highest power output of any engine in the air. It is much lighter than conventional reciprocating engines of less power. It is inherently simple. It can operate on a wide range of fuels. It eliminates delay for engine warm-up.

Of particular significance, G.E. aircraft gas turbines virtually eliminate vibration and noise.

HORIZONS UNLIMITED

Pure jet propulsion is now the ideal power for fighter

planes. Our major effort, so far, has been devoted to perfecting the gas turbine for this use. However, practical-minded G.E. engineers envision almost limitless use of aircraft gas turbines on transport, cargo, and private planes of the future, for propeller drive as well as jet propulsion. Here, they will give you combinations of speed plus range that you have scarcely dared to hope for.



The principle of the gas turbine places no such limit on power as do reciprocating engines. Moreover, they will give long life and their best fuel economy even when operating at a high percentage of their maximum power.

As the progress of aircraft gas-turbine propulsion continues, you will find G.E. pioneering many of the basic developments which will make possible by farther and farther—which will bring new comfort and safety to air travel. Apparatus Department, General Electric Company, Schenectady 5, N. Y.

Buy all the BONDS you can—and keep all you buy

GENERAL  ELECTRIC

closed and probably will not be for some time, but production of Voyager 125 is already underway at Nashville. Of the 3,500 aircraft planned for this year and the next, one-half have already been sold—300 are to be built to Western States Aviation Co., Glendale, Calif., distributor for Southern California and Nevada (AVIATION NEWS, August 28).

Aeronca's first plane is expected off the line on Sept. 5.

Airline Partners—While some companies are shrewd of discussing their distributor organization, all show an increasing awareness of strong manufacturer-dealer ties. The tendency seems to be to pattern the system after the successful one in vogue in the automotive industry.

Piper expects to appeal more to dealers than to distributors with its already selected. Under this of course, will be dealers.

Piper has selected 50 distributors to date, Republic, 35.

There is a noticeable trend to bring more sales efforts to prospective customers. Although Piper experts to conduct its selling largely to airports, Aerocraft and others will have in-house show rooms. Republic's amphitheater will be displayed at airports and any water landing areas.

Bombard Control—All manufacturers agree that production will be chiefly controlled by demand. Used to fulfilling tremendous war schedules, they are geared to far exceed pre-war output. On the basis of existing backlog, manufacturers optimistic regarding the future.

Piper has orders totaling 3,500.

Fields Full

Although manufacturers of lightplanes stress that production will be regulated first by demand, they follow up with the statement that the chief bottleneck is the lack of sufficient landing fields. Some are convinced that the nation's present airports have just about reached saturation point and that even more private flying is not going to cease until there are more fields.

One of the outstanding proponents of this view is W. T. Piper, president of the aircraft company bearing his name, who advocates establishment of a great many auxiliary, short-runways, extensive or temporary, but just areas suitable for operation of small aircraft.

New Glider Plant

Production of aluminum and plywood wing-carrying gliders has been started by Lauter-Kaufman

—mill from individuals, states W. T. Piper, president, and name from dealers or distributors. Piper has been deliberately keeping the brakes on. The company now has some \$384,000 of "other people's money," and to the moment is not anxious for more.

Taylorcraft has the heaviest backlog revealed in the survey—5,600 orders. Other firms are reluctant to give backlog figures. W. T.

Co. in the Louisville, Ky., plant recently vacated by the Curtiss-Wright Corp.

The St. Louis glider firm has taken over the south half of the 1,560-foot "high bay" area of the \$10,000,000 plant and will turn out about 164 of the big gliders for the Army, according to company spokesman.

Big Load—The gliders under current action will have a wing span of 168 feet and carry 43 troops in battle dress, or a 25-ton truck with personnel and load.

'Sample' Lessons Boost Flight Roster

A unique project by Grand Rapids, Mich., manufacturers is to build interest in flying among their employees by having endorsed by some industry sources as holding tremendous possibilities for speed and an expansion of private flying.

Under the plan, the business organization purchases "sample" flying lessons—generally, three or four—for their workers. These are gifts, and the instructional sessions last more than 10 minutes.

Bank for More—However, during a period of one year, more than 2,000 lessons are reserved at an average cost of \$10. Of these, 81, or 47 percent, were bank for more instruction at their own expense. More than 100 have added.

The plan originated before the war, with Sam Fletcher, local businessman, one of the guiding spirits. During the war the idea was discontinued, but resumed this summer. One firm, Winter & Cravens, makers of refrigerators and stove hardware, assumed their pre-war contract and have to date bought 8,000 flying lessons for their employees.

Other companies active in the enterprise are Lear, Inc., Flivver Propeller Co., Expert Dye and Stamping Co., Michigan Bilt Co., and Grand Rapids Motor Coach Co.

Interest—Fletcher, since the resumption of the project, has received enthusiastic letters from aircraft manufacturers. He has proposed to them that they inaugurate the same indoctrination among their employees and attempt to persuade their suppliers to follow suit.

Light Gliders, Engines Marked For RFC Sale

The RFC, disposal agency for the surplus aircraft, has 149 Taylorcraft TG-5 gliders for sale which can be converted into lightplanes by replacing the nose with an engine mount, adding an engine and making other alterations required by CAA.

These gliders were adapted from light aircraft designs at the beginning of the war and have much the same general structural features. A limited number of the Taylorcraft and Franklin engines have been set aside for sale with the gliders. Prices have been set at \$338 and the engines range from \$183 to \$455 depending upon the make and condition.

Locations—Sales offices are Harts Field, Ft. Worth; Army Air Field, Albuquerque, N. M.; Thunderbird II, Phoenix, Ariz.; Cameron Field, Oklahoma City; Olympia Army Field, Olympia, Wash.; Cal-Kore Airport, Ontario, Calif.; and Bush Field, Augusta, Ga.

Airport Trade Sought In Piston Firm's Plane

Looking toward a future of greatly-expanded use of aircraft, McQuay-Norris Manufacturing Co., makers of piston rings, has put into service an own plane and is concentrating on replacement parts business at airports throughout the country.

The company's plane is a four-place Fairchild 24, is at present carrying McQuay-Norris materials to many of the principal airports. Although already one of the largest producers of aircraft rings, the firm has in the past paid scant attention to the replacement phase of the business.



Boeing B-29 Superfortress (above) and Boeing B-52 Interceptor

Boeing B-52 Interceptor

Trail-blazer for peacetime flight

The Boeing B-29 Superfortress is something more than the weapon that helped win the war against Japan. It embodies principles that will revolutionize air transport now that victory is won.

Not only have the great Boeing planes in which you may soon travel already been designed . . . a military version of the first true super-transport of the future—the Boeing Stratoformer—has taken all records for transcontinental flight, with a coast-to-coast average speed of 383 miles per hour!

Boeing has had more experience in the design and building of four-engine aircraft than any other manufacturer

in the world. Like the Superfortress, the new Stratoformer has four engines—and even greater horsepower will be added.

Like the B-29, it has the extraordinarily efficient Boeing wing, giving it longer carrying capacity—plus higher performance and greater economy in operation than any other transport.

Again, like the Superfortress, the Stratoformer benefits from Boeing lead in atmospheric research and the production of aircraft for high-speed, cold-weather operation. It has improved pressurized cabin—plus other refinements in sound-proofing and air-conditioning.

It has all the advances and outstanding advances of the last three years, proved in war on Boeing-built aircraft—all the new features contributing to safe navigation, ease of control and dependable performance—plus passenger comfort never before imagined. It represents as no other commercial airplane has yet done, man's growing understanding of the laws of flight.

Now that peace is here, Boeing principles of research, design, engineering and manufacture will bring you the Stratoformer and other Boeing transports . . . and you may have a say airplane—it's "built to last."

BOEING

MEMBERS OF THE BOEING SUPERPOWERED: THE FLYING FORTRESS • THE NEW STRATOFORMER • THE B-52 INTERCEPTOR • THE STRATOFORMER • THE ANTELOPE CLIPPER

New Norseman V Hikes Cargo Load

Latest commercial version of long-used Norseman cargo and charter plane, now in production, offers greater weight-carrying ability and improved performance.

A new version of the long-used Norseman, Norseman cargo and charter plane, now in production, offers greater weight-carrying ability and improved performance.

The only Canadian-designed aircraft used by the U.S. air forces during the war (C-61), the Norseman has long been popular with Canadian "bush" operators and charter services in the U.S. because of its economy and, for a single-engine plane, load.

Weights.—The latest type, the Norseman V, as a landplane, has a 2,160-pound disposable load, 440 pounds greater than the wartime plane and 385 pounds more than the pre-war Norseman. As a seaplane, the V has a disposable load of 1,860 pounds.

A large cargo compartment, 20 ft. long and with a span of 51 ft., the V is served by a Pratt and Whitney R-1830-94 engine of 600 horsepower, for takeoff. It can accommodate six passengers in upholstered chairs, and 120 pounds of cargo, or eight passengers on beach seats, and 355 pounds of cargo.

Large, removable doors on each side of the fuselage give easy ac-

cess to the passenger and cargo compartment. Independent access to the pilot's cabin is possible, likewise through doors on each side. A small belly compartment under the cabin also has an outside door.

Battery Hold.—One feature simplifying maintenance problems is a special battery compartment. In older models, the battery was held to the floor of the cabin. In the V, it slides out on runners.

New Ports Planned In Wash. and Ore.

Plans have been announced for the construction of three private airports in western Washington and Oregon, all within a range of 200 miles.

Two of the fields will be built in Washington—one at Tacoma, the other at Vancouver, Wash.—by the Northwest Aircraft Distributing Co., of Vancouver. The Vancouver field, just across the Columbia river from Portland, Ore., is on a 365-acre site six miles west of Vancouver.

Varied Facilities.—The site has been graded and leveled and a main hangar has been erected. A sheet metal hangar, runway, runways and small hangars will be constructed as soon as CAA designates the field as an approved landing area.

A runway is already in use at a

new Tacoma airpark, south of the city, and a contract has been awarded for a concrete block hangar. Later, it is planned to erect 20 smaller hangars.

At Seattle, Ore., a resort some 75 miles from Portland, Irving A. Allen and Elmer Smith, of that city, plan to construct a \$100,000 airport on a 145-acre temporary CAA field. Clearing and grading is under way for a 230-foot-wide turf landing strip 5,000 ft. long. One feature of this field will be groups of individual cottages for fliers.

Private Cabins.—Another close-in airport project now under way in the Northwest is a two-runway field three miles east of Seattle. This will be for private fliers and aircraft service operators. Cabins for transient pilots are also contemplated at this field, as well as club facilities. Runways will be 3,000 ft. by 300 ft.

Joint Airport Plans Set By 2 Counties

A possible pattern for joint airport planning between two or more local governments has been established by Madison and St. Clair counties in Illinois in laying out a coordinated system of airports to be built in the two areas.

On the basis of a new state law which authorizes counties to construct landing facilities financed by local taxes, a joint committee was formed to plan a network of fields throughout both counties.

Lightplane Fields.—A report of this committee recommends the establishment of 43 Class I fields specifically for private fliers, and eight Class II airports which could also be used for local service airlines. The Class I fields would be sod-covered, the others would have sod and paved runways.

Fred C. Parks, chairman of the committee, points out that an airport, in effect, is only one link in a chain of several highways. Thus the value of two counties acting jointly to construct a great many fields covering practically every community, rather than concentrating airport building at a few large cities.

French Lightplane

Evidence that France intends to "take care of its own" in the field of private flying, is carried in an announcement by the government that early production is scheduled



RE-ENTERS LIGHTPLANE PICTURE:

Built originally by Allied Aviation of Baltimore and purchased by Commonwealth Aircraft Inc. (formerly Heurner Aircraft and Engines), of Kansas City, this three-passenger, two-engine, Trainer amphibian has now been re-entered as a Commonwealth in the pentane-lightplane market. Production of the craft is expected in about 90 days by company officials who say the price will be "about" that of a higher priced motor car, compared to the \$10,000 cost of similar models before the war. Lorraine re-entered in the 175-mph proposed production model features built-in galley facilities, carried at the extreme sportman, and seats convertible to bunks. Six hundred wide range of the amphibian, according to the company, is attained at a fuel consumption rate of about nine gallons per hour.



battle-proven VIBRASHOCK® available for light planes

Before you choose any radio or electronic equipment for your personal light plane, ask this question. How is it going to be shock mounted? In the past poorly maintained radio equipment has proven a common source of trouble, expense, and lost flight time.

Unprotected from vibration and shock, the very best airborne equipment cannot stand up for long. Repairs and maintenance of poor equipment will actually cost many times the original investment unless shock and vibration is adequately controlled. Present personal plane owners are well aware of this fact.

There is one shock mount that accomplishes this purpose. It is the Robinson VibraShock suspension. VibraShock suspensions are the only complete, fully engineered suspensions guaranteed to absorb over 90% of all vibration within the operating range of aircraft. This is an efficiency rating far beyond previous shock mount standards.

Vital airborne equipment on Army and Navy airplanes is supported by VibraShock. You too can have this same dependable protection against vibration if you insist on VibraShock suspensions for all your communication and flight equipment. Check with the manufacturer of the plane you propose to buy.

Trade Mark

ROBINSON AVIATION, INC.

720 Park Avenue, New York 36, N. Y.
1217 Wilshire Blvd., Los Angeles 5, Calif.

Hot shoes for cold propellers . . .



THE ICE FLOWER on the hub of this model airplane propeller isn't as serious as it looks; but fingers of ice, creeping along the blades, were a big worry to pilots for years. The picture was made in a B. F. Goodrich refrigerated wind tunnel in an 80-mile-an-hour wind, which exaggerates the bad ice. But ice on the blades, in actual flight, means loss of power, bad balance, vibration that could even jar the engine loose.

To a pilot, the smaller picture looks a lot better. It's an electrically heated propeller shoe, a new B. F. Goodrich development. It's shown here hooked up to a testing machine in the laboratory. (The wires are part of the testing equipment; they are not on the blade in flight.)

With these shoes on his propeller blades, the pilot simply flicks a switch when he runs into icing weather. Current flows through wires along the shoes' edges. A special conductive rubber carries the current across the shoe, and carefully planned resistances cause the rubber to heat up.

Many other parts of the airplane are protected from ice with B. F. Goodrich equipment. The best known of these are the B. F. Goodrich De-icers that crack ice off as it forms on wings and tails, keeping these surfaces clean and smooth for safer flying. De-icers were developed and are made exclusively by B. F. Goodrich.

Years of ice-fighting experience are back of this equipment. It means a safer, more comfortable trip if you fly today or when you fly tomorrow. *The B. F. Goodrich Company, Aerospace Division, Akron, Ohio.*

Skyway or Highway

B.F. Goodrich

FIRST IN RUBBER

for a 140-mph. "tourist plane" designated the *Swiss*.

Range of the proposed light-plane would be 723 miles and the proposed cost is "little more than that of a high-powered automobile." Possibility that the plane may embody certain innovations is seen in the statement that it may be safely flown by persons of limited flying experience. Although exact capacity of the *Swiss* is not described, it is said to be easily convertible for ambulance service within a "spacious interior."

CAB Lists Probes On Five Accidents

Stalls on takeoff, icing, and emergency landing mishaps accounted for five lightplane accidents recently reported by the Civil Aeronautics Board. Pilot error was cited in four of the five cases.

Details of the accidents and the CAB findings follow:

DETROIT, MICH. (D&D) Student Pilot James W. Jones, 20, of Toledo, Ohio, was fatally injured, and a Bell Piper destroyed when he stalled on takeoff April 1, 1948. Yielding off a runway at 17 mph, he stalled and then was unable to get the engine to run. He had a stall warning device, but it was giving about 10 degrees when the stall warning device was set at 15 degrees. The engine was running when the accident occurred.

CARLTON, MINN. Student pilot of a Cessna was unable to keep off the ground when he stalled on takeoff. The Cessna was owned by the Carlton Flying Club. The engine was running when the accident occurred.

MONTEZUMA, ALA. Commercial Pilot Alton C. (Duke) Davis, flying alone, was unable to keep off the ground when he stalled on takeoff. Davis had obtained a flight instructor's certificate in an aircraft in the state. Davis had been flying for 10 hours and 15 minutes when he took off from the airport. He was flying at 10 mph when he stalled on takeoff. The engine was running when the accident occurred.

CARLTON, MINN. Preliminary report of accident was that the pilot stalled on takeoff and was unable to keep off the ground when he stalled on the wings.

PROVINCETOWN, MASS. Pilot Lawrence DeGrazia, 20, of Boston, Massachusetts, a member of Civilian Transport volunteers and a member of the Girl Scouts, was killed when his Cessna, registered N8000, crashed into the water off Provincetown, Mass., with a license rating of 100 hours. DeGrazia had a Cessna 172 rating and was flying alone when he stalled on an emergency flight to the Cape. DeGrazia had been flying for 10 hours and 15 minutes when he stalled on takeoff. The engine was running when the accident occurred.

CARLTON, MINN. Preliminary report of accident was that the pilot stalled on takeoff and was unable to keep off the ground when he stalled on the wings. The aircraft was being used by the Girl Scouts of America for use by the Girl Scouts division. It is the first of three Piper Trans to be given to the group, the other two to be donated in the next two years.

The aircraft will be used by the Girl Scouts for ground instruction. Organized into more than 300 "lights" throughout the country, the ten-to-12 girls carry on a program of pre-flight aviation activities. As each of the planes is turned over to the Scouts, it will be allocated to one of the 12 Scout regions to be used for one year.

Travel By Ad

Examples of what may be a coming commonplace, as flight and fuel connections are lifted and private plane manufacturers swing toward full production, are given in a recent edition of Washington's *Travel Star*.

Spurred among these efforts to share expenses on auto trips, the classic ad section's "motor travel" division, were two recent ads. One was for an long air trip in private planes. One extended an invitation for two passengers to fly to California in a twin-engine craft, while the other sought two passengers on a flight to the West Coast. By the next day the offer to California had apparently been taken.

Wing Scouts principally for ground instruction. Organized into more than 300 "lights" throughout the country, the ten-to-12 girls carry on a program of pre-flight aviation activities. As each of the planes is turned over to the Scouts, it will be allocated to one of the 12 Scout regions to be used for one year.

Lightplane Engine Boom Anticipated

By early next year, Continental Motors Corp. expects to be building, in two models, more small aircraft engines than they ever built in an entire year before the war was

In making this announcement, C. J. Rose, president, also reported:

• All tell one manufacturer of aircraft carrying engines of 100 horsepower or less have plans to use Continental's new C series horizontal opposed air-cooled engines.

• The new Navy 22-passenger biplane, which was flight tested in July by its manufacturer, is expected to have the engine with counter-rotating propellers. The engine was unable to start when the propellers were turned in the same direction, the engine failing to revolve. It is believed to have started when the propellers were turned in opposite directions.

• Continental has a contract to further develop the impulse jet engines for the Air Technical Service Command.

Cuba-U. S. Air Taxi Operation Organized

Plans for accommodating 200,000 tourists to Cuba, annually, are now being made by a newly-organized air taxi and charter service headed by Major Luis F. Ardon.

By the end of this year, Major Ardon hopes to have six aircraft in operation. He expects to increase this to 20 next year. He recently purchased two Piper Cruisers from Embry-Riddle School of Aviation, Miami, Fla., where he was studying for a private rating.

Alto. Official — Cuba's leading spokesman for Civilian Transport, Major Ardon has been flying 15 years and is licensed in the U. S. as well as in his home country. He is aviation director of Cuban, which he originated in the construction of a modern airport with a 3,000-foot runway.

'Civilian' Piper Cub Given to Girl Scouts

One of the first Piper Cub to be released for civilian use since the beginning of the war has been presented by the manufacturer to the Girl Scouts of America for use by its Wing Scouts division. It is the first of three Piper Trans to be given to the group, the other two to be donated in the next two years.

The aircraft will be used by the



THE ROOF OF TOMORROW WAS HERE YESTERDAY

Some of the first roof awards for long life and crack resistance have been won over the past four years by roofs of Koppers. In spite of many improvements which have been discovered or developed during the war, no one has been able to find

KOPPERS

and *Aviation*



Koppers, through its American Hammered Pewter Ring Division, is one of the largest manufacturers of piston rings in the world.

Buy War Bonds . . . And Keep Them!
KOPPERS COMPANY, INC., Pittsburgh 19, Pa.

KOPPERS

THE INDUSTRY THAT SERVES ALL INDUSTRY

Big War Fields Present Challenge

CAA watches closely as small town attempts to find use for "million dollar airport" built for Navy.

By KARL HEISS

Civil Aeronautics Administration officials this week were watching a small Texas town in find a possible answer to a new and pressing postwar problem facing many communities throughout the country: What does a small town do with a million dollar airport? The small town, in this "test tube" case, is Coopers, Tex., about 50 miles north of Houston. The "million dollar airport" was built by CAA for the Navy and used for training.

First step, upon being informed the Navy would no longer require the field and would turn it over to the local government—Montgomery County, of which Coopers, of about 5,000 population, is the

county seat—was taken by the County Court. Appropriated for maintenance of the field was \$25,000, original cost of the land, to the county, was \$75,000.

Aware that the Coopers problem is one that will soon be facing many other municipalities failing to do as good a job on military fields built by CAA, the agency has already begun a series of conferences between county and city officials and CAA specialists from Fort Worth, headquarters of the Fourth Region.

Commercial Move—First government suggestion came from S. K. Tracy, Jr., superintendent of airports for the region. He advised the city to discuss the possibility of leasing the airport to a commercial operator as a step toward making it self-sufficient.

Most burden there, of course, is whether Coopers' location and size potential would allow economically sound use of such an extensive facility.

Other proposals have included cooperative operation with organizations concerned with fisheries

Air Bans

Exact decision on what to do about the West Coast private flying restrictions last week was not reached, but the following of summer terms. It was believed in responsible quarters that some lifting of present requirements would be announced simultaneously with the summer, and that among them would be a slighting of the 100-mile commercial ban. Consideration given for early discontinuance of the immediate future is not, however, certain. As reported last week, some areas might remain closed to facilitate the return to this country of Army and Navy planes and material.

Joint for returning war veterans, many of whom may desire a place in civil aviation.

Forcought—According to CAA, the field was located as that fulfillment of its wartime task would leave it well situated for civilian use. The inordinate size was passed on to war demands and not inaccurate planning. But that size still exists as a potential "white elephant" unless carefully handled.

The town's paper has already devoted pages of editorial space to the new civic segment, urging immediate planning so that use of the otherwise lucrative facilities are not lost. Unquestionably, however, it adds an opinion that the project couldn't be made self-supporting in five years, "if ever."

As an aid to whatever action the town chooses to take, the paper followed up later by printing the full text of the CAA publication *Airport Management*, "to the end that interested people will digest its contents and take upon themselves the task of seeing to it that Montgomery County is not sold short by neglect of the airport, its physical properties and its future possibilities."

Pro and Con—Town leaders feel the county is already "800,000 ahead" considering the physical value of the plant and its original cost of \$75,000. But opposition leaders claim there isn't enough business in sight to justify spending the estimated 15 cents an airplane hour of the cost of operation.

What steps will be taken by the people to fit the airport into their lives may well provide a "lesson" or a "golden rule" for similar communities, facing similar problems, across the nation.

BIGGER AND BIGGER AND BIGGER THEY GROW...



Consolidated Model 20—proposed Model 20—quasi 304 passenger transport. Speed: 300 mph. cap. 300. 200 ft. take-off distance longer than transports or current airline use. On the drawing-board today, but in the airport tomorrow.

And with them grows your sales potential

You read it in every morning's newspaper. You see it overhead almost daily. The unprecedented growth of commercial flying is creating tons of transportation.

Forgotten? U. S. business men are only the first among millions of air transport customers. They are not walking—they are flying. Their ground work now: East, Texas, Sioux City, Calif. are fully engaged of the industry's future market possibilities. So are Goodrich, Goodyear, Firestone, U. S. Rubber, Westinghouse, General Electric and scores of other U. S. business leaders are preparing now for what they know lies ahead.

Do you manufacture spark plugs? or generators? or bearings? Do you sell electrical tools? or wire cable? or radio tubes? or any one of a thousand other products that industry needs and uses every day?

Then we heartily advise you to examine this market carefully. Not what it was yesterday—not what it is now under wartime restrictions—but what it inevitably will be tomorrow.

Examine the development work being done by the one magazine that serves this field exclusively—*Air Transport*.

Check the relatively small cost of conducting an intensive advertising effort in this field on the pages of *Air Transport*.

A new booklet tells the whole story. "The Builders of our Biggest Growing Transportation Industry" is available to interested sales and advertising executives. May we send you a copy? Write *Air Transport*, McGraw-Hill Publishing Co., Inc., 330 West 42nd St., New York 18, N. Y.

Members are for a list of the industrial and service companies advertising in *Air Transport*.



COVER ALL THE BASES WITH...AIR TRANSPORT—AVIATION—AVIATION NEWS

AIRPLANES—OVER THE COUNTER:

As an immediate follow-up to its plan to begin floor sales of Ercoupe this fall, Marshall Field & Co., has opened this unique information booth on the first floor of its Store for Men, in Chicago. Emphasizing ready-to-go would-be private fliers, and the idea that buying and flying a plane is no longer a tedious and highly difficult undertaking, the booth exhibits numerous drawings and photos of the Ercoupe plus general information on private flying facilities in and around Chicago. In charge of the booth is Fulton M. Moore, veteran of 28,000 flying hours and numerous pilot training programs.

Three-Unit Aircar Design Described

Engineer proposes mobile aircraft consisting of auto chassis, plane chassis, and body-cabin that fits both.

By BLAINE STUBBLEFIELD

A three-part air-and-road vehicle, consisting of automobile chassis, airplane chassis, and body-cabin that fits either, has been designed by Herbert D. Bagg of Omaha, Nebraska. The design is named Aircar.

The designer expects the car combination will gross about 3,200 pounds, and the airplane combination about 2,400. Weight of the airplane chassis is reduced by substitution of glass-fiber wing and body covering, which the designer says is more produced by Cummins Glass and Libbey-Owens-Ford, and has been used experimentally at Wright Field.

Punker—The body-cabin contains a rear-mounted engine, which is hydraulically geared to the car chassis for road use, and which drives a removable propeller for flight.

Bagg, an aeronautical engineer associated with The Gleason L. Martin-Nebraska Company, has done several years research on his design and hopes to produce a prototype.

type next spring at a cost of about \$50,000. A company is in process of formation.

Because of the designer's desire to avoid too much compromise between plane and car and to produce a car with adequate weight, and a plane light enough for good performance.

Plane Unit—The airplane chassis is a low-wing monoplane with tricycle retractable landing gear, two booms, fin, and rudder, with inboard stabilizer. It has limited control for spin resistance; brakes and ground steering; lands at 40 mph.

The car chassis has hydraulic drive, through pressure tubing from a pump geared to the engine, which is carried in the body-cabin. When the cabin is removed the pump and fly-wheel compartment are moved back so that the propeller engine is unimpeded. The engine chassis has variable speed change and is expected to "cruise" at 50 mph. The wheels are individually sprung.

The two-door body-cabin seats four persons and contains a 140-hp Continental air-cooled fuel injection engine. It fastens to either the car or the plane with a plate and lock-out system which is described as fool proof. The engine is expected to give 15 miles per gallon on the ground, and about 20 in the air.



New Bandit Plane Model: Probably the first use of plain cloth-halved "sandwich" construction in light civil aircraft is contemplated for the Aircar. Aircar, a revolutionary aircraft-motorcycle combination proposed by Herbert Bagg of Omaha, and which is shown above in flying model form. First full-scale prototype is expected to go into construction about Oct. 1. Design includes three parts: plane chassis, automobile chassis, and body-cabin, interchangeable between the two. In quantity, Bagg hopes to sell his new vehicle for under \$3,000.

Unit **Resale**—An Aircar owner would own all three units, or he might own only two, in which case he would rent the third unit from a service company. Conversion from plane to car and vice versa would be done with special equipment at any one of 50 to 70 service stations distributed throughout the country. The change would be made in four or five minutes, Bagg believes.

On a small production basis the designer estimates the cost of all three units at about \$6,000, or a mass basis at less than \$3,000.

25 Private Plane Licenses Awarded

New airworthiness certificates have been issued for 25 private type planes, purchased recently from military surplus by firms and individuals.

List of the aircraft numbers, buyers, make and model of plane and engine, and date of manufacture follows:

MC 450-1—Mr. Arthur H. Gleason, Los Angeles, Calif., Brewster, Franklin.

MC 450-2—C. W. Henshaw, Inc., Aviation Co., Denver, Colo., Brewster, Franklin.

MC 450-3—Mr. E. S. S. Kline, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-4—Mr. W. C. Walker, Box 210, Memphis, Calif., Papoose, Continental, 450.

MC 450-5—James W. Miller, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-6—Mr. C. C. Johnson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-7—Mr. R. M. Thompson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-8—Mr. J. W. Johnson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-9—Mr. J. W. Johnson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-10—Mr. J. W. Johnson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-11—Mr. J. W. Johnson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-12—Mr. J. W. Johnson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

MC 450-13—Mr. J. W. Johnson, 2100 Forest Park, St. Louis, Mo., Brewster, Franklin.

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COMMENTARY

Nazi Radar Research Lag
Cited As High War Blunder

Losing of security restrictions on military use of radar provides evaluation of enemy's development; equipment called adequate but below Allied standards after "fatal" improvement lapse in 1940-42.

The recent lifting of the American blackout on the military use of radar has made possible a general estimate as to how well our enemies, particularly Germany, made use of this miracle of modern science.

We know that in 1933 the Telefunken Company in Berlin revealed details of a 10 centimeter "mystery ray" system and is believed capable of locating the position of aircraft from the ground, airplane (the "spur"), and the "solo" which was picked up by a group of receivers built in small weather-proof boxes which could be fastened on top of church steeples and tall buildings.

That the U. S. Navy, Army Signal Corps, the British, and possibly the Indians had similar developments under way at about this time.

The basic early warning set used by the Germans was known as *Freya* (the Venus of Norse mythology) and dates back to 1930. This set and its several variants is comparable to the U. S. Army Signal Corps original ground station and to similar equipment used by the British and French.

Warren Network—An extensive chain of such radar sets in France and the Low Countries provided the Luftwaffe with sufficient warning to meet the bulk of the RAF and AAF heavy bomber missions until early 1944.

At this time the Allied bomber strength was such that several staggered missions could be mounted in such a way as to cut down

the effectiveness of the early warning radar.

The year 1939 saw a very useful set put into operation by the Germans known as the *Würzburg*, it was used for searchlight control to spot night bombers, AA fire control, height finding (usually along with *Freya*, which gave early warning but not height), and GCI (ground controlled interception, a system for aiding night fighters).

A "Fake" System—It was reported that radio beams could be sent upwards at a fixed angle from a large group of micro-wave transmitters. After this, signals from the hidden airplane (the "spur") and the "solo" were picked up by a group of receivers built in small weather-proof boxes which could be fastened on top of church steeples and tall buildings.

The operator would challenge the plane whose "spur" appeared on his scope by switching on his interrogator; if he heard a distinctive tone in his headphones, the plane was a "friendly." Improved versions of the *Würzburg*, available in 1944, made German radar highly accurate and deadly weapon.

For the ABW function (air to surface vessels) the basic German set was known as *Habicht*, with antenna carried ahead of the nose. This set was used in practically all of the types of planes used for surface shipping, including the Ju-88, Ju-188, FW-190 (Kurtis), He-111, He-117 and Do-217.

"Bitter"—Intercept sets with two range-sweeps (50 miles, then 5 miles to target density), and better discrimination, were in use before the end of the European war.

German airborne interception equipment was not developed until 1941. At the start of the war they depended on an inferior de-



B-32 PROPELLERS:

Largest four-bladed hollow steel propellers in quantity production, these giant blades, for the AAF's newest super-heavy bomber, measure 16 feet, 8 inches. Electric reversible, they are driven for the B-32's four 2,200-hp engines are being manufactured or sub-leased by the Curtiss-Wright Corp., Cleveland, N. J.

vice which powered entirely inside-outside.

The first AB set was called *Lichtenstein*, and was very similar to the early British AI equipment, which came out sooner. Its elaborate antenna array in the nose wasted so much drag that speed was reduced by 12/13 miles. The heavy night fighters (Ju-88, Me-410, etc.) had greatly improved AI equipment, with greater range, wider angle of detection, synchronization and an airborne IFF system.

Fatal Fashion—Concessions indicate that the Germans slipped along very badly in their failure to keep up their developments of radar in 1945-46, especially in the micro-wave field, blind bombing devices and more effective search equipment. The Japs were further still behind, but caught up fairly rapidly; their ground equipment is fair, but the airborne staff has a long way to go.

NATOR

CAP Chief Reassigned

Col. Earle L. Johnson, national commander of the Civil Air Patrol since the early days of its formation, has been assigned to overseas duty by the Air Forces. During his absence, which is expected to be for several months, Col. Harry H. Biss will be acting national CAP commander. Col. Biss has been deputy commander

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AIRPLANE ARMAMENT

FINANCIAL

Peacetime Air Cargo Potential In Main Shipping Groups Listed

Air Cargo, Inc. survey reveals "very definite" pattern for first five post-war years; more than half of formerly rail-carried goods seen going by air in some cases.

A preliminary picture of air cargo potential in 33 important manufacturing industries has been prepared by Air Cargo, Inc. While some parts of the picture are reassuring, it is complete enough so that a "very definite" pattern emerges, indicating of the shape air cargo will take in the first five post-war years.

The report is based on estimated express tonnage shipped in 1939 by the 33 manufacturing industries covered. It indicates the estimated diversion of this tonnage to air transportation at each of seven rate levels.

Dollar Value—The industries covered in the study produced commodities with a value of \$32,556,000,000 in 1939, which is approximately 45 percent of the total value of manufactured goods produced.

These industries shipped 415,710 tons (non-local express tonnage) of product by railway express in 1939, which is 25 percent of the total first class railway express tonnage shipped at that year.

The 415,710 tons shipped were moved 287,000,000 ton-miles at an average rate of 13.2 cents per ton-mile, and yielded a revenue to Railway Express Agency of \$45,662,000.

The following Table A summarizes the estimated diversion of express tonnage to air transportation at each of seven rate levels for the 33 industry groups combined.

Apparel Leads—At all rate levels, the apparel industry will be the largest user of air transportation, accounting for a minimum of 38 percent of the total tonnage shipped at Rate C, up to 63 percent of the total tonnage shipped at Rate X (100 percent above the railway express rate).

The second largest user of air cargo, at most rate levels, will be the machinery industry. This industry will produce from 6.5 percent of the total tonnage at Rate X, up to 28.8 percent of the total at Rate R.

8 percent of the total tonnage at rates B or D, and 19 percent at Rate C.

In general, as the rate per ton-mile drops, the industries tend to assume positions as producers of air cargo comparable to their ranks as users of railway express. At the higher rate levels, the manufacturers usually have present value means of getting the shape of certain packages, packaging and transcriptions, electrolytes and printing plates made to give them a position as producers of air cargo higher than would be indicated by the total tonnage of railway express shipped.

Diversified Study—Because of the detailed nature of the study, the 33 industries have been combined into 13 industry groups in order to present the data in Table B on the diversion of express tonnage to air transportation at each of the seven rate levels.

Reynolds Earnings Up

A jump of more than \$2,000,000 in earnings for the first six months of 1945, over the similar period of 1944, is reported by Reynolds Metals Co. Consolidated earnings before taxes and special amortization of emergency facilities amounted to \$13,865,476. After provision of \$2,601,000 for taxes and \$2,306,665 for amortization, net profits were \$2,951,481, an amount \$2,113,663 for the first half of 1944. Current earnings are equal to \$1.65 per share on \$18,625,663 worth of outstanding common stock.

Table A: Estimated Diversion to Air Transportation

Rate	Tons			Average Rate per ton-mile	Revenue
	Actual	%	Number		
1939 Totals	415,710	100.0%	387,614,000	13.2	\$45,662,000
Estimated Diversion to Air					
Rate AA	4,735	1.1%	4,267,000	13.5	57,414
Rate B	8,146	1.9%	7,312,000	13.8	98,756
Rate C	31,146	7.5%	27,500,000	14.2	387,500
Rate D	32,925	7.8%	29,000,000	14.5	414,000
Rate E	30,900	7.4%	27,500,000	14.8	404,500
Rate F	35,750	8.5%	31,400,000	15.2	464,000
Rate G	40,900	9.8%	35,400,000	15.6	527,500
Rate X	100,000	24.1%	90,000,000	16.0	1,440,000

Table B: Air Cargo Potential For 33 Industry Groups

(Based on Railway Express Tonnage Shipped in 1939)

Rate	Tons			Average Rate per ton-mile	Revenue
	Actual	%	Number		
At Rate AA	8,950	2.0%	7,627,000	13.5	109,440
At Rate B	16,900	3.9%	14,632,000	13.8	214,000
At Rate C	30,950	7.5%	27,500,000	14.2	387,500
At Rate D	32,950	7.8%	29,000,000	14.5	414,000
At Rate E	30,950	7.4%	27,500,000	14.8	404,500
At Rate F	35,750	8.5%	31,400,000	15.2	464,000
At Rate G	40,900	9.8%	35,400,000	15.6	527,500
At Rate X	100,000	24.1%	90,000,000	16.0	1,440,000

Rate	Tons			Average Rate per ton-mile	Revenue
	Actual	%	Number		
At Rate AA	875	2.1%	7,628,000	13.5	109,740
At Rate B	1,650	3.9%	14,633,000	13.8	214,200
At Rate C	3,050	7.5%	27,500,000	14.2	387,500
At Rate D	3,250	7.8%	29,000,000	14.5	414,000
At Rate E	3,050	7.4%	27,500,000	14.8	404,500
At Rate F	3,525	8.5%	31,400,000	15.2	464,000
At Rate G	4,050	9.8%	35,400,000	15.6	527,500
At Rate X	10,000	24.1%	90,000,000	16.0	1,440,000

(Continued on page 10)

Air Corps Potential For All Industry Groups
Based on Airway Express Volume Shipped in 1940

Industry Groups	Total	Tons Shipped		Average Rate Per Tcw-Mile	Revenue
		Amount	% ¹		
Motor Vehicles	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Automobiles	800,000	800,000	80.00	10.24	\$8,192,000
Commercial Vehicles	200,000	200,000	20.00	10.24	\$2,048,000
Motor Vehicles	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Automobiles	800,000	800,000	80.00	10.24	\$8,192,000
Commercial Vehicles	200,000	200,000	20.00	10.24	\$2,048,000
Printing and Publishing	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Books	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Non-Ferrous Metal Products	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Professional and Scientific Instruments	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Chemical and Drugs	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Leather and Leather Products	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Motor Products	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Textiles	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Recorders and Transmitters	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000
Other Trade and Factories	1,000,000	1,000,000	100.00	10.24	\$10,240,000
Aluminum	800,000	800,000	80.00	10.24	\$8,192,000
Commercial	200,000	200,000	20.00	10.24	\$2,048,000

¹The percentages in these columns show the proportion of air cargo to the industry groups which corresponds to each industry.

Industrial Research
Lauded By Wilson

The decisive character of industrial research was cited as the outstanding lesson of the war by Eugene E. Wilson, president of the Aircraft Industries Association, who pointed to the atomic bomb as the ultimate proof of his argument.

Wilson told members of the Dawa Hall in Los Angeles that the advent of the atomic bomb and of self-propelled and guided missiles forecasts less emphasis on the airplane as a weapon, but he pointed out, at the same time, the enormous expansion in air transport reveals the expanding importance of the airplane as a vehicle.

Now Factors.—Wilson resolved little into strength to assure freedom of movement to oneself and to deny it to the enemy," he said. "The record of World War II clearly shows that air power has introduced completely new strategic factors of fundamental importance.

"While ground forces have remained the only means of seizing and holding a land objective and seaborne forces have continued to exercise their decisive influence through command of the sea, air forces have exercised control over both land and sea communication. **Applied Needs.**—Wilson said he believed that everyone now recognizes the need for scientific research, but, it must be kept in mind, there is equally compelling need for applied science. This he sees as the largest part of the job and added that its success rests with industrial leaders.

He warned it will be necessary to keep the full engineering staffs of the entire aircraft industry working at top speed if America is to retain its present place in aviation and safeguard the nation.

"We have made a notable record of quantity production, but in doing so we have been preoccupied with our resources of men, money and materials and need now to re-emphasize quality," he said. "Our aircraft needs must resume their interrupted course. Trained engineers now in service must get back into industry. The air forces, the airlines, and the aircraft manufacturers must collaborate in speed development, so as to keep in the forefront of technological progress and be ready to expand again in case of emergency."

DEPENDABLE



Aircraft built
by the
United
States Army
in
World War II

ALL PARTS ARE DOING THEIR PART



CORPORATION
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CAA Radar, VHF, Landing Tests Point to New Airline Techniques

Instrument approaches at frequency of contact weather traffic seen near for all careers; daytime beacons visible through 6,000-ft. of overcast among other new developments revealed at special demonstration.

By ALEXANDER MCSURELY

New developments in precision application of radar, combined with new Very High Frequency (VHF) radio equipment are expected to speed up instrument landing procedure to a frequency of landing comparable to that now made in conduct weather. Civil Aeronautics Administration officials have matched VHF on a number of the ranges, but the complete job of substituting the new frequencies, which will give freedom from static and interference, will require many months. In the interim, new planes probably will be equipped with both intermediate frequency and VHF receivers.

except that VHF was used instead of standard low frequency radio, the intervals were cut from four to three minutes, and the simulated ceiling was dropped from 400-ft. at Washington to ceiling zero at Indianapolis.

The demonstration, however, showed a technique which is still an intermediate step in the final instrument landing procedure and which will use radar-type screens in control towers in combination with VHF communications between plane and tower. Screens showing vertical and horizontal cross sections of the area within 10 miles of the airport are being developed. Glen Gilbert, CAA assistant administrator, said that equipment now in use at the Indianapolis CAA experimental station was built up from military radar equipment, but that it was hoped to have a unit specially built for control towers as soon as possible.

Use Shows—Using VHF, the CAA demonstrated an instrument approach and landing procedure which enabled six planes to land in three-minute intervals from a "stack" at a radio holding marker 10 miles from the airport. The procedure was essentially similar to that used in a recent CAA demonstration at Washington National Airport (AVIATION NEWS, July 23).

VHF Outlook

While airline planes are expected to be equipped in the next few months to use Very High Frequency radio in instrument landing, making instrument landings four or five years will elapse before all radio ranges on the nation's airways will be equipped.

Civil Aeronautics Administration officials have matched VHF on a number of the ranges, but the complete job of substituting the new frequencies, which will give freedom from static and interference, will require many months. In the interim, new planes probably will be equipped with both intermediate frequency and VHF receivers.

Equipment has been installed in CAA control towers at 50 major airports, but its use is held up by lack of receiving equipment among the carriers. Now that the war has ended, such equipment is expected to become available rapidly.

Airport List—CAA approach procedure for instrument landings is in use in the meantime at 29 of these airports, but on low frequency voice channels, and has meant a reduction in arrival rate from approximately 15 to four or five aircraft per hour. By mid-September the system is to be in use at all 50. Those presently using it are Atlanta; Bangor, Maine; Charleston, S. C.; Chicago; Dallas; Fort Worth; Kansas City; Long Beach, Calif.; Madison, Wis.; Nashville; Norfolk; Pittsburgh; Portland, Ore.; Peoria, Ill.; Miami; Richmond, Va.; San Diego; St. Louis; Seattle; Tampa, and Washington.

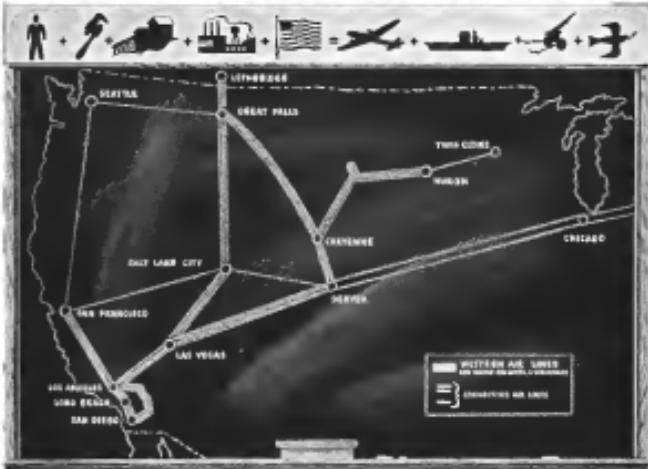
A frequency of approximately one minute for instrument landings may be attained with the bringing into general use of radar screens in control towers, it was predicted.

Disclosure was made that the Indianapolis CAA experimental station, in operation since 1939, is planning considerable expansion in order to intensify its research activities, increasing its present staff of 32 to more than 100 employees. Currently the station leases approximately 300 acres on the edge of the airport, which includes 22 sites for various facilities such as experimental radio installations. The city of Indianapolis is preparing to construct a \$1,000,000



FRANCE'S NEW TRANSPORT:

This 12-ton, twin-engine transport plane, the Belairier, is the latest French transport model. Part of its type constructed in France, it has a top speed of 300-mph. and a 237-mph. cruising speed. Built for the sub-atmosphere, it has an unpressurized cabin. Normal flight range is 1,250 miles. The Belairier was designed after the fall of France, and hidden under camouflage until after France's liberation.



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hangar for use of the CAA in addition to its present facilities.

Other interesting new developments in the Indianapolis station, developed and demonstrated to the visitors, included:

• A transmissometer, used to measure the extent to which the atmosphere will transmit light, to establish a more accurate basis of measuring visibility. The device uses a narrow beam of light carefully calibrated and directed toward a photoelectric cell receiver which measures the light and records its value, something after the manner of a photographic exposure meter. Two transmissometers, in use, throw their beams, respectively, 120 meters and one kilometer. Eventually it is expected every major airport will be equipped with such a device, with an indicator in the control tower showing the visibility.

• Three new types of approach lights, the Army Barlow system, a Westinghouse system, and a General Electric system. The Army and Westinghouse systems are currently installed on the approach to the Indianapolis field, while the General Electric lights are still in an early stage of development.

The lights can be operated at various brightness levels, depending on visibility requirements.

• A high intensity flashing beacon for daytime use, consisting of four Xenon gas lamps which flash in series, for a total period of one-tenth second, every second. Each of the flashes is approximately 30,000,000 candlepower. The light is visible through 6,000 feet of overcast in the daytime.

• A glide path indicator for instrument landing systems which shows a dashed line on the ground glide path to the station at the airport. If an aircraft is on the correct glide path, the light appears white; if it is above the path it is green and if below it is red. The light changes from green to red in less than one degree.

• Use of an azimuth selector in a plane in connection with an omnidirectional radio range which enables the pilot to determine his bearing in relation to the range or to fly a visually indicated course in any direction from the range. The pilot sets the pointer on the azimuth scale at his desired course and centers the left-right indicator, or, if he wishes to determine his bearing from the range, he turns the azimuth pointer until a green "accuracy" signal light flashes on and the left-right indi-

cator and course development of world air transportation.

• Officers Nominations—During the first week's meetings, PICAO elected and appointed its principal officers, resolved informal action on the question of duration of sessions, named temporary committees to study and report on final organization, finance and personnel, and began consideration of the U. S. Government's review of member-states' recommendations on the technical annexes approved at the Chicago conference.

No surprise to anyone was the election by acclamation of Dr. Edward P. Warner, former U. S. alternate, as president of the Interim Council of the Provincial International Civil Aviation Organization. Under PICAO's constitution, he must resign from the CAB.



Council President: Dr. Edward P. Warner, vice-chairman of the Civil Aviation Board, has been elected president of the Interim Council of the Provincial International Civil Aviation Organization. Under PICAO's constitution, he must resign from the CAB.

cation centers. The reading on the scale will then be his bearing. If he flies toward the station, the green light will go out when he passes the station and a red light will go on.

A dinner meeting with addresses by Gilbert, Henry L. Metz, chief of the Indianapolis station, Donald M. Stuart, chief of CAA technical development, Walker Winslow, Indianapolis airport manager, C. N. Cornish, new Indiana state aeronautics director, and Senator Homer K. Capenhart, concluded the two-day session.

Interim Air Council Marked By Accord

First meeting of PICAO group indicates bright prospects for orderly and rapid development of world aviation.

A notable degree of unanimity and swift progress in handling the large number of primary organizational problems have characterized early meetings of the first session of the Interim Council of the Provincial International Civil Aviation Organization (PICAO), set up at last fall's International Civil Aviation Conference at Chicago.

The general accord evidenced is probably the most important aspect of the deliberations since the meeting opened Aug. 18. For on the successful functioning of this new body depends the prospect of

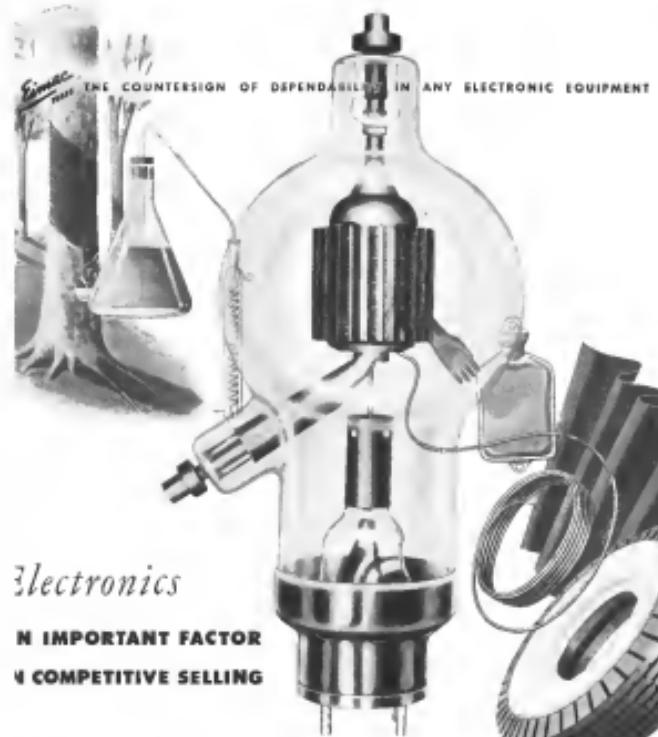
no surprise to anyone was the appointment of Dr. Albert Roper, of France, for 23 years secretary-general of the International Commission on Air Navigation, as the key post of secretary-general of PICAO. Dr. Roper, now in London at the ICAO plenary session, will hold this appointment and is expected in Montreal today.

• Vice-Presidents—Three vice-presidents elected were: Dr. H. Capen van Elsbeek, Netherlands delegate, Dr. K. N. Chang of China, and Dr. G. E. Suarez, Colombian. Temporary committees on organization, finance, and personnel were set up under the respective chairmanships of Sir Frederick Brintell, United Kingdom; Sir Gunnar Blix, Sweden, and Dr. Jan Hensek, Czechoslovakia.

These decisions, Dr. Warner pointed out, will be clarified. They will pave the way for the establishment of the six important standing committees on air navigation, air transport, and convention in international civil aviation.

From early discussion on the duration of PICAO sessions, there emerged general agreement that council business, together with technical committee work, would be a full time job for delegates. Because of the maturity and urgent nature of tasks before the new organization, it was considered undesirable to have any considerable break in continuity. It is expected the present session will end early this week and adjourn to Oct. 1.

• Budget—PICAO's budget is ex-



hancing of rubber goods—tires or tennis shoes—with electronics may provide not only a better method, but also a sales advantage either in price or quality or both. Today you can't safely overlook the advantages which will be had by the competitor who employs electronics.

In selecting electronic equipment for your application, give preference to that equipped with Eimac electron vacuum tubes. You'll get a double guarantee of infection—one from the equipment maker and the second from Eimac. Furthermore, you'll have the benefit of Eimac facilities and experience. Remember: Eimac vacuum tubes are the heart of any electronic equipment.

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OUT ELECTRONIC TUBES! Don't overlook getting the new issue of *Electron Tube*—the monthly magazine of the American Society of Electronic Engineers. It is the best journal of electronics in business languages. There is an air of intelligence

pected to be about \$800,000, the figure suggested in the Canadian Preparatory Committee's preliminary documentation. At a press conference following the first meeting of his Finance committee, Mr. Gurash said this sum would be divided among member states on a basis of ability to pay and benefits to be derived through international aviation by the nations concerned.

At the same time, it was announced by Dr. Roemer that the secretariat probably would consist of between 120 and 130 persons. An indication of the membership of the secretariat, which will be divided among member states on a basis of ability to pay and benefits to be derived through international aviation by the nations concerned.

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Eighteen countries have sent delegates to Montreal, though the Chicago conference provided for an estimated 21-member council.

None of the 18 has not filed the place left vacant by the absence of the assembly, and Mexico has emphatically failed to name her delegates to the first session of the council.

NAL Given New Born
Coastal Air Route Link

Authority to serve New Bern, N. C., as an additional stop on AM 31 between New York and Miami has been granted National Airlines by the Civil Aeronautics Board. Pending decision in the Southwestern States case, the board deferred action on Eastern Air Lines' application for authority to serve New Bern and Wilmington, N. C., on AM 6.

CAB's opinion made it clear that granting National the authority sought would provide New Bern with service of a north-south nature on New York-Jacksonville route and "would not prevent establishment of additional service to the coast."

• **Mail Link**—In support of its application, which it has filed to add New Bern to its air mail route, Eastern Airlines—the board cited the city's commercial importance and its present lack of adequate rail service.

House Transportation Probe Outline Submitted To Industry

Pamphlet prepared by investigation leader, Rep. Lee, asks comment on steady points ranging from integration to taxation and unified control group; statements of policy sought; 19 main questions listed.

A pamphlet outlining the general scope of the transportation investigation to be undertaken this fall by the House Interstate and Foreign Commerce Committee and inviting proposals from transportation industries on revisions in transportation law has been distributed by Rep. Clarence Lee, (D-Calif.) committee chairman, under whose jurisdiction the study is to be made.

Lee asked that suggestions and statements of policy be presented in writing to the committee.

Study Subjects—General transportation topics to be reviewed—regulation, taxes, common ownership and integration, disclosure, federal aid to transportation, interstate barriers to commerce, the unregulated carrier, and railroads.

Lee says that when the committee has completed a thorough study of the transportation field along lines laid down in the pamphlet, legislation embodying committee findings will be introduced and public hearings held.

Here are some of the points and questions posed by the committee in its topical outline for its investigation:

• **Advantages and disadvantages of a single regulatory body for all forms of common carriers, reporting directly to Congress.**

• **To what extent has the Federal government the legal authority and the public duty to remove state barriers to the free flow of commerce, apart from considerations of safety?**

• **To what extent, and under what circumstances, are differentials in rates as between different types of carriers warranted or desirable, or necessary in fairness to the carrier, or necessary to give the public the inherent advantage of each?**

• **Advantages and disadvantages of various means of financing transportation agencies—stocks, bonds, and other securities.**

• **What legislative or administrative remedies, if any, are needed to encourage private capital investment in the common carrier industry, on reasonable terms?**

• **Steps that may be taken, apart from Congressional action, by carriers**

from the standpoint of (a) credit position of the carriers; (b) maintenance of reasonable rates over wide geographical and economic areas; (c) savings in capital outlay and operations costs; (d) service to industry and the traveling public; and (e) extending greater stability by uniting the industry with the weak carriers.

• **What public policy should prevail as to common ownership, operation, and control of common carriers of the same type and of different types?**

• **Relation of taxation to transportation income and earnings. Multiple taxation as imposed by various political subdivisions. Discriminatory taxation.**

• **To what extent and by what means are common carriers of any type hindered by taxation policies?**

• **Do you regard any present Federal aid to transportation as working an unfair advantage or disadvantage to any types of carriers? If so, to what agencies; and what corrective remedy do you suggest?**

• **To what extent, if any, should Federal aid to various types of common carriers be provided?**

• **To what extent has the Federal government the legal authority and the public duty to remove state barriers to the free flow of commerce, apart from considerations of safety?**

• **What should be done to secure state cooperation to remove artificial barriers and oppressive regulations of interstate transportation as to highways, railroads, waterways and air transport?**

• **What government support, if any, should be given a public carrier with a marginal or submarginal revenue?**

• **What should be the attitude of the public toward abandonment of a marginal or submarginal carrier for which there is an adequate substitute service, or for which adequate substitute service can be provided?**

• **How do you regard consolidations**

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► What effort have common carriers made to reduce war-time competition?

► Plans for greater coordination of terminal facilities between carriers of the same and other types

right because the airlines hope to divert to themselves as much of the total travel as possible. "The passenger or shipper, if he were required to depend upon a transportation monopoly, would have to get along with the present antiquated Pullman cars, the present obsolete buses and trucks, and he would be riding in a 32-passenger DC-3 for a very long time."

Continuation of competition among the various forms of transportation must be retained if the public is to benefit from full development of all methods of travel, Stuart G. Tipton, acting president of the Air Transport Association, said last week in a reply to advocates of transportation integration.

In a talk before the aviation section of the New York Board of Trade, Tipton directed his remarks particularly to the Transportation Association of America, whose executive vice-president, Donald Clegg, told the Board last month that "there could not be any why highway, water, and rail carriers should be permitted from common interest in air carriers."

► **Air Advantages**—Citing instances in which air travel is cheaper than by rail and Pullman, Tipton predicted more such airline advantages in the future. He recalled that the 18 major airline members of ATA have about 500 new planes on order or option, to make a total of 1,000, compared with 329 in the domestic fleet before Post War. He assured the group that "better accommodations than the passenger or driver" will feature the longer flights.

Improvements and rate reductions, the ATA head said, are in

the works to meet the airlines' needs as much as possible. "The passenger or shipper, if he were required to depend upon a transportation monopoly, would have to get along with the present antiquated Pullman cars, the present obsolete buses and trucks, and he would be riding in a 32-passenger DC-3 for a very long time."

Continuation of competition among the various forms of transportation, Tipton asserted, means that the general public will completely control their development. But, "if this competition is eliminated, the general public loses that active, enterprising spirit that is so essential to a great monopoly," he declared.

► **Federal Control**—Saying that it was the view of those in aviation that partial integration is "just as bad" as total integration, he replied that "I can see no better way of getting government ownership, and quickly, than by creating eight or nine great transportation monopolies over which the general public can not possibly have any control."

Continent-Wide Weather Code Discussed By ATA

Proposals for a universal weather-reporting code for all of North America were discussed last week at a meeting of the Meteorological Committee of the Air Transport Association with Weather Bureau representatives from the U. S. and Canada.

Consideration of the code, which would be the same for the U. S., Canada and Mexico, was to follow a regular meeting of the committee at Chicago. Miscellaneous problems also were on the agenda for conversations between the committee and representatives of the

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Regulating Fixed Based Carriers

FOR THE FIRST TIME in any periodical, the complete text of CAB's proposed safety regulations for all non-scheduled air carriers in interstate, foreign and overseas operations appears in this issue of AVIATION NEWS, beginning on Page 11.

The draft, which would become Part 42 of the Civil Air Regulations, is being distributed for comments. If its provisions were adopted, every aircraft service operator would find himself subjected to federal control and regulation as soon as he sought to make one commercial transport flight across a state line, and it appears likely that far less than half of today's estimated 15,000 to 20,000 operators would be able to conduct—if they so wished—any commercial interstate non-scheduled carrier service of passengers or cargo.

Although the Civil Aeronautics Act of 1938 has economic jurisdiction over all non-scheduled commercial carriers, a Board order has been in effect since October of that year exempting them. An examiner's report issued last week, following the Board's economic investigation of non-scheduled air service, proposes revision but not full repeal of that exemption order. A classification of fixed-base air carriers would be set up. Each such carrier would require an air carrier operating certificate, which would mean accordance also with provisions of the final safety provisions of the new Part 42.

Naturally, both the proposed economic and safety regulations, as they now stand, would restrict the present unlimited freedom of operation in the non-scheduled field. There will be some protests that there

is still no necessity for any regulation. The News, however, is convinced that some jurisdiction by the Board is necessary in the interest of public safety and of the operators themselves—provided that it is token regulation only.

We believe the examiners' report is essentially an excellent document, with commendable consideration for the industry's problems. The new safety regulations proposed for Part 42, however, appear drastic and restrictive in some particulars, and could throttle the new industry in this vital shake-down period when so much wisdom is necessary in determining the extent of regulation.

It has been contended on this page before, however, the CAB and its Safety Bureau show every sign of consultation, cooperation and understanding of operators' problems.

We believe several important changes in the present Part 42 draft may be possible, and that some provisions can be eliminated. The entire part can probably be shortened. But CAB will demand good reason from a uplifted and determined industry. Operators will make a stand if they feel it wise, or if they stubbornly refuse to realize that some sort of regulation is inevitable, or if they do not come to Washington ready to give and take.

So far they needed to stand together and merge their collective intelligence and remain clear headed; it is in the next few months. Despite anything else that may be said, they now can have more to say—if they so decide—about the extent of the regulation which will be put on them than does the CAB.

ROBERT H. WOOD



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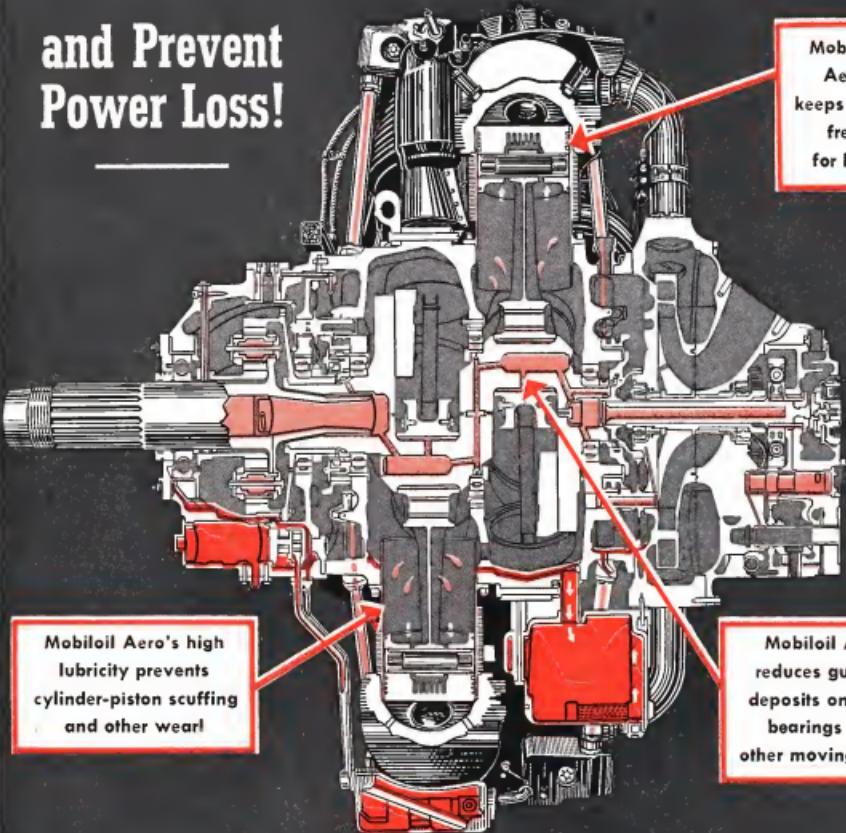


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